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REGULATORY TAKINGS AND PROPERTY RIGHTS CONFRONT SEA LEVEL RISE: HOW DO THEY ROLL?

By John R. Nolon[*]

ABSTRACT

Under the Beach and Shore Preservation Act, the state of Florida is authorized to conduct extraordinarily expensive beach renourishment projects to restore damaged coastal properties. The statute advances the state's interest in repairing the damage to the coastal ecosystem and economy caused by hurricanes, high winds, and storm surges. The effect of a renourishment project conducted under the statute is to fix the legal boundary of the littoral property owner at an erosion control line. Plaintiffs in Walton County v. Stop the Beach Renourishment, Inc. *claimed that the statute took their common law property rights to their boundary, which would, but for the Act, move gradually landward or seaward, maintaining contact with the water. The Supreme Court of Florida disagreed, and the Supreme Court of the United States granted certiorari in* Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection *to determine whether the state court reinterpreted Florida's common law as a pretext for upholding the statute against the plaintiffs' taking claim and, if so, whether that reinterpretation constituted a "judicial taking." The Court ultimately decided that the Florida court's interpretation was correct and that there was no regulatory taking. A majority of the Court could not agree as to whether a state court's interpretation of state common law could constitute a judicial taking.*

This article[1] discusses greenhouse gas emissions, global warming, sea level rise, and the ferocity of coastal storms

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associated with climate change. It explores the tension between these movements in nature and the policy of the state of Florida to fix property boundaries, which under common law would move landward as the sea level rises. The property rights and title to land of littoral landowners are described and the effect of the Beach and Shore Preservation Act on them are discussed. The article contrasts Florida's coastal policy regarding beach and shore protection with the policies and programs of federal, state, and local governments that use other approaches, such as accommodating rolling easements, prohibiting shoreline armoring, requiring removal of buildings, purchasing development rights or the land itself, and imposing moratoria on rebuilding after storm events. These may be less expensive and more realistic responses to long-term coastal erosion and avulsive events and the inevitability of sea level rise as the climate warms and worsens. The article concludes with a recommendation that the framework for federal, state, and local cooperation with respect to coastal management be revisited and strengthened so that the full resources and knowledge of all levels of government are brought to bear on this critical issue. It suggests that strengthening these intergovernmental ties, rather than radically restructuring the relationship between state and federal courts, is a more productive method of meeting the needs of a changing society.

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[1] This article is one of four that examine how local land use law can be used as an effective strategy to manage climate change. *See* John R. Nolon, *Land Use for Energy Conservation: A Local Strategy for Climate Change Mitigation*, 27 J. LAND USE & ENVTL. L. (forthcoming 2012) [hereinafter Nolon, *Land Use for Energy Conservation*]; John R. Nolon, *Managing Climate Change Through Biological Sequestration: Open Space Law Redux*, STAN. ENVTL. L. REV. (forthcoming 2012) [hereinafter Nolon, *Managing Climate Change*]; John R. Nolon, *The Land Use Stabilization Wedge Strategy: Shifting Ground to Mitigate Climate Change*, 34 WM. & MARY ENVTL. L. & POL'Y REV. 1 (2009) [hereinafter Nolon, *Land Use Stabilization*].

I. CLIMATE CHANGE, SEA LEVEL RISE, AND COASTAL STORMS: THEIR EFFECT ON LITTORAL OWNERSHIP IN FLORIDA

A. Climate Change Projections

According to a 2008 report of the Miami-Dade County Task Force on Climate Change:

> Miami-Dade County as we know it will significantly change with a 3-4 foot sea level rise. Spring high tides would be at about + 6 to 7 feet; freshwater resources would be gone; the Everglades would be inundated on the west side of Miami-Dade County; the barrier islands would be largely inundated; storm surges would be devastating; [and] landfill sites would be exposed to erosion[,] contaminating marine and coastal environments.[2]

Climate change caught the attention of this Florida county's leadership and led to the creation of this task force, paralleling a nationwide trend to study, anticipate, and adapt to sea level rise and fierce coastal storms.[3] Climate change is caused by the emission of greenhouse gases (GHG)[4] and their accumulation in the atmosphere; these gases let the sunlight through, but block heat from escaping.[5] This accumulation causes polar ice to melt,

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[2] MIAMI-DADE CNTY. CLIMATE CHANGE ADVISORY TASK FORCE, SECOND REPORT AND INITIAL RECOMMENDATIONS 4 (2008), http://www.miamidade.gov/derm/library/08-10-04_CCATF_BCC_Package.pdf (presenting the topic of sea level rise to the Miami-Dade Board of County Commissioners).

[3] *See, e.g.*, LAND USE LAW CTR., PACE UNIV. SCH. OF LAW, LOCAL LAND USE RESPONSE TO SEA LEVEL RISE 6 (2011), http://www.csc.noaa.gov/digitalcoast/inundation/_pdf/Pace_Final_Report.pdf.

[4] NOAA Satellite & Info. Serv., *Greenhouse Gases*, NCDC, http://www.ncdc.noaa.gov/oa/climate/gases.html (last updated Feb. 23, 2010).

[5] U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 19 (2009), http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf. "Analysis of air bubbles trapped in an Antarctic ice core extending back 800,000 years [showed that] . . . [o]ver this long period[,] . . . the atmospheric carbon dioxide concentration [varied] within a range of about 170 to 300 parts per

reduces the reflection of the sun's rays, and warms seawater through the absorption of more of the sun's energy.[6] Warmer seawater increases the wind speed of coastal storms and the amount of moisture they release.[7] Melting ice and the increased water temperatures cause sea levels to rise.[8] Because of the absence of effective international and national GHG emission reduction mechanisms,[9] accumulations of these gases in the atmosphere will increase, some say alarmingly.[10]

Eighty-three percent of GHG is carbon dioxide, which is emitted from coal-fired electrical generation plants, buildings, and automobile tailpipes.[11] Various aspects of our modern lives

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million (ppm). . . . [T]he present carbon dioxide concentration of about 385 ppm is about 30 percent above its highest level over at least the last 800,000 years." *Id*. at 13.

[6] *Id*. at 17, 18.

[7] *Id*. at 36.

[8] *Id.* at 18 ("[O]cean water expands as it warms, and therefore takes up more space."); *see also* NATHANIEL L. BINDOFF ET. AL., OBSERVATIONS: OCEANIC CLIMATE CHANGE AND SEA LEVEL 408 (2007), http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter5.pdf ("[G]lobal mean sea level change results from two major processes: . . . i) thermal expansion . . . and ii) the exchange of water between oceans and other reservoirs (glaciers and ice caps, ice sheets, other land water reservoirs . . .)."); *see generally Water - Thermal Properties*, THE ENGINEERING TOOLBOX, http://www.engineeringtoolbox.com/water-thermal-properties-d_162.html (last visited Feb. 22, 2012) (showing that water expands when heated).

[9] COMM. ON AM.'S CLIMATE CHOICES, AMERICA'S CLIMATE CHOICES 8 (2011).

[10] *See id.* at 21 (showing projections ranging from 450 ppm to over 950 ppm by 2100); *see also* Kevin Trenberth, *Check with Climate Scientists for Views on Climate*, WALL ST. J. (Feb. 1, 2012), http://online.wsj.com/article/SB10001424052970204740904577193270727472662.html?KEYWORDS=no+need+to+panic+about+global+warming ("The National Academy of Sciences of the U.S. (set up by President Abraham Lincoln to advise on scientific issues), as well as major national academies of science around the world and every other authoritative body of scientists active in climate research have stated that the science is clear: The world is heating up and humans are primarily responsible. Impacts are already apparent and will increase. Reducing future impacts will require significant reductions in emissions of heat-trapping gases.").

[11] *See* U.S. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2009, at ES-5 (2011), http://www.epa.gov/climatechange/emissions/downloads11/US-GHG-

intensify the effects of climate change.[12] Up to three-quarters of the energy used to produce electricity is lost as escaped heat at the point of generation, in transmission to the point of use, or because of energy-inefficient home sizes and building construction.[13] Our single-family homes use disproportionate amounts of energy and waste much of it,[14] while suburban families travel between home and somewhere else up to fifteen times a day.[15] Vehicle miles traveled have increased at three times the rate of population increase due to the spread-out pattern of development in the United States.[16] The population of the United States, according to the Census Bureau, will increase by more than 100 million—approximately 40 million households—by 2040.[17] As this happens, the private market will add new homes, places of work, and other nonresidential buildings space, and the carbon emissions

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Inventory-2011-Complete_Report.pdf (reporting that the primary GHG emitted by human activities in the U.S. is CO_2 and that it represented approximately 83 percent of total GHG emissions).

[12] *See* Trenberth, *supra* note 10 ("Research shows that more than 97[percent] of scientists actively publishing in the field agree that climate change is real and human caused. It would be an act of recklessness for any political leader to disregard the weight of evidence and ignore the enormous risks that climate change clearly poses. In addition, there is very clear evidence that investing in the transition to a low-carbon economy will not only allow the world to avoid the worst risks of climate change, but could also drive decades of economic growth. Just what the doctor ordered.").

[13] ABB INC., ENERGY EFFICIENCY IN THE POWER GRID 2-3 (2007).

[14] *See* Reid Ewing & Fang Rong, *The Impact of Urban Form on U.S. Energy Use*, 19 HOUSING POL'Y DEBATE 1, 20 (2008) (finding that households living in single-family units use 54 percent more energy from space heating and 26 percent more energy for space cooling than households living in multi-family units).

[15] *See* Todd Litman, *Can Smart Growth Policies Conserve Energy and Reduce Emissions?*, 5 CTR. FOR REAL EST. Q.J. 21, 25 (2011), http://www.pdx.edu/sites/www.pdx.edu.realestate/files/Quarterly-Complete%20201105.pdf.

[16] *See* KEITH BARTHOLOMEW & REID EWING, LAND USE-TRANSPORTATION SCENARIO PLANNING IN AN ERA OF GLOBAL CLIMATE CHANGE 4 (Nov. 5, 2007), http://faculty.arch.utah.edu/bartholomew/Bartholomew_Ewing_Revision.pdf.

[17] *See U.S. Population Projections*, U.S. CENSUS BUREAU (2008), http://www.census.gov/population/www/projections/summarytables.html (follow the first summary for "Projections of the Population and Components of Change for the United States: 2010 to 2050").

associated with commuting, regional travel, and the heating and cooling of these additional buildings will increase significantly.[18]

B. Climate Change, Thoughtful Precaution, and Sea Level Rise

One of the most recent reports on sea level rise research is found in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).[19] This report generated six emissions scenarios and six corresponding temperature change ranges.[20] The lowest-predicted increase in temperature was 1.1°C,[21] while the highest-predicted temperature increase was 6.4°C.[22] The IPCC also generated sea level rise estimates corresponding to each level of temperature increase.[23] While sea level rise estimates vary widely on a regional scale,[24] the IPCC's general estimates are helpful in developing adaptation responses. The Fourth Assessment Report predicts a global average sea level rise between 0.18 and 0.59 meters by the end of the century.[25] As "the IPCC study did not consider increased melt water contributions from Greenland and Antarctica, these estimates are considered conservative."[26]

A more recent report by the U.S. Climate Change Science Program (CCSP) found that "[e]xtrapolating the recent acceleration of ice discharges from the polar ice sheets would imply an

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[18] For a more extensive description of these causes of GHG emissions and available mitigation techniques, see Nolon, *Land Use Stabilization*, *supra* note 1, at 13-14, 26, 37.

[19] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 26 (2007) [hereinafter IPCC SYNTHESIS REPORT], http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

[20] *Id.* at 45.

[21] *Id*.

[22] *Id.*

[23] *Id.*

[24] *See* U.S. CLIMATE CHANGE SCI. PROGRAM, COASTAL SENSITIVITY TO SEA-LEVEL RISE: A FOCUS ON THE MID-ATLANTIC REGION 13 (2009) [hereinafter CCSP COASTAL SENSITIVITY], http://www.climatescience.gov/Library/sap/sap4-1/final-report/sap4-1-final-report-all.pdf.

[25] IPCC SYNTHESIS REPORT, *supra* note 19, at 45.

[26] Jessica A. Bacher, *Zoning and Land Use Planning*, 38 REAL EST. L.J. 96, 97 (2009).

additional contribution [of] up to 0.20 m[eters to the IPCC estimates]. If melting of these ice caps increases, larger values of sea-level rise cannot be excluded."[27] Therefore, "thoughtful precaution suggests that a global sea-level rise of 1 m[eter] to the year 2100 should be considered for future planning and policy discussions."[28] Indeed, studies more recent than the CCSP's report indicate that "[e]ven for the lowest emission scenario [generated by the IPCC], sea-level rise is then likely to be ≈ 1 m[eter]; for the highest, it may even come closer to 2 m[eters over 1990 levels]."[29]

C. Climate Change and Coastal Storms

In addition to sea level rise, climate change causes the temperature of seawater to increase.[30] This rise in sea temperature in tropical areas will increase the ferocity of future hurricanes,[31] as "[w]armer surface water dissipates more readily into vapor, making it easier for small ocean storms to escalate into larger, more powerful systems."[32] Specifically, these future tropical cyclones will have "larger peak wind speeds and more heavy precipitation associated with ongoing increases of tropical sea-surface temperatures."[33] Thus, current research on climate change and hurricanes has indicated that "*it is likely that greenhouse warming will cause hurricanes in the coming century to be more intense globally and have higher rainfall rates than present-day hurricanes*."[34]

As the level of GHG emissions continues to increase and global temperature continues to rise, the nature of storm events

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[27] CCSP COASTAL SENSITIVITY, *supra* note 24, at 15.

[28] *Id.* at 20.

[29] Martin Vermeer & Stefan Rahmstorf, *Global Sea Level Linked to Global Temperature*, 106 PROC. NAT'L ACAD. SCI. U.S. 21527, 21531 (2009), *available at* http://www.pnas.org/content/106/51/21527.full.pdf+html.

[30] *See* IPCC SYNTHESIS REPORT, *supra* note 19, at 46.

[31] *See* CCSP COASTAL SENSITIVITY, *supra* note 24, at 21.

[32] *Sea Temperature Rise*, NAT'L GEOGRAPHIC SOC'Y, http://ocean.nationalgeographic.com/ocean/critical-issues-sea-temperature-rise/ (last visited Apr. 1, 2012).

[33] IPCC SYNTHESIS REPORT, *supra* note 19, at 46.

[34] Thomas R. Knutson, *Global Warming and Hurricanes*, NAT'L OCEANOGRAPHIC & ATMOSPHERIC ADMIN. (Aug. 26, 2011), http://www.gfdl.noaa.gov/global-warming-and-hurricanes.

will also change. The weather-related effects of climate change include "powerful tropical storms, erosion of ocean coastlines, worsening of drought in the Southwest, heat waves of greater intensity in the Northeast, more heat-related illness and deaths, and an increase in asthma and other respiratory ailments."[35] Recent reports on weather-related effects of climate change have reiterated these consequences.[36] In its most recent report on climate change, the IPCC found that "heavy precipitation will occur more often, and the wind speed of tropical cyclones will increase while their number will likely remain constant or decrease."[37]

Closely related to this increase in the intensity of tropical cyclones is the problem of sea level rise. While "[t]he Gulf Coast population has long been at risk from hurricanes, storm surges, river flooding, global sea level rise, regional subsidence, and a variable hydrologic network,"[38] these risks are magnified by climate change. The IPCC found that "[i]t is *likely* that there has been an increase in extreme coastal high water related to increases in mean sea level."[39] The combination of sea level rise and more intense storm events can lead to a host of problems, including reduced freshwater supplies,[40] failing infrastructure and evacuation delays,[41] endangered energy generation sites,[42] and endangered ecosystems.[43] Alarmingly, "[c]limate change in the form of more

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[35] Nolon, *Land Use Stabilization*, *supra* note 1, at 21; *see also* U.S. GLOBAL CHANGE RESEARCH PROGRAM, *supra* note 5, at 8, 25, 57, 83, 107.

[36] *See generally* INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, MANAGING THE RISKS OF EXTREME EVENTS AND DISASTERS TO ADVANCE CLIMATE CHANGE ADAPTATION (2012) [hereinafter IPCC SPECIAL REPORT], http://ipcc-wg2.gov/SREX/images/uploads/SREX-All_FINAL.pdf. The report is the result of collaboration between 220 authors from 62 countries. *Special Report*, IPCC, http://ipcc-wg2.gov/SREX/ (last visited Apr. 1, 2012). In finishing the report, the authors responded to 18,611 review comments. *Id.*

[37] *Press Note*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (Nov. 18, 2011), http://ipcc-wg2.gov/SREX/images/uploads/SREX_English_PR.pdf.

[38] NAT'L RESEARCH COUNCIL, ADAPTING TO THE IMPACT OF CLIMATE CHANGE 82-83 (2010) (citation omitted), *available at* http://www.nap.edu/catalog/12783.html.

[39] IPCC SPECIAL REPORT, *supra* note 36, at 7.

[40] *See* NAT'L RESEARCH COUNCIL, *supra* note 38, at 45.

[41] *See id*. at 48.

[42] *See id*. at 82-83.

[43] *See id*.

frequent or intensive tropical storms, a more intensive precipitation regime and ensuing floods, and accelerated rates of global sea level rise will exacerbate the hazards and make adaptation choices even more difficult."[44]

D. The Future of Coastal Ecosystems and Economies

Directly tied to both sea level rise and the increased reach of storm surges is the vulnerability of coastal areas to these future extreme events, as "[i]ncreases in exposure will result in higher direct economic losses from tropical cyclones."[45] Simply put, "[t]he combination of sea level rise and storm surges poses a serious threat to coastal cities and ecosystems, especially areas that already experience multiple other stressors such as urban growth, human-induced changes in sediment loading and land subsidence, and high nutrient runoff."[46] This danger is of no small consequence, as "[c]oastal counties are among the most densely populated areas in the United States—more than a third of all Americans live near the coast, and activities along or on the ocean contribute more than $1 trillion to the nation's economy."[47]

State and local governments are beginning to pay attention to these warnings and to real signs that the effects of climate change are already occurring, particularly at the ocean's edge.[48] The substantial damage to the Florida coastline precipitated by hurricanes and other storm events led the state to invest heavily in beach renourishment under the state law that gives it that authority.[49] Florida has 1260 miles of coastland, comprising 825 miles of sandy shoreline.[50] Of those 825 miles, 485 are eroded and

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[44] *Id*. at 83.

[45] IPCC SPECIAL REPORT, *supra* note 36, at 14.

[46] NAT'L RESEARCH COUNCIL, *supra* note 38, at 45.

[47] *Id.*

[48] *Beach Erosion Control Program (BECP)*, FLA. DEP'T ENVTL. PROT., http://www.dep.state.fl.us/beaches/programs/bcherosn.htm (last visited Feb. 14, 2012); *Florida Geological Survey: Coastal Research Projects*, FLA. DEP'T ENVTL. PROT., http://www.dep.state.fl.us/geology/programs/coastal/coastal.htm (last visited Feb. 14, 2012).

[49] *See* sources cited *supra* note 48.

[50] *See* sources cited *supra* note 48.

388 are listed as "critically eroded," signifying that they are in need of restoration under the law.[51]

II. COASTAL PROPERTY RIGHTS IN FLORIDA AND THE EFFECT OF THE BEACH AND SHORE PRESERVATION ACT

Under the common law, the state of Florida owns legal title to the beach seaward of the mean high water line (MHWL),[52] and it holds that property in trust on behalf of the public for navigation, fishing, and bathing.[53] That boundary moves gradually landward and seaward as the beach erodes and accretes.[54] The Florida Constitution imposes an obligation on the state to protect and conserve natural resources, including the coastal shoreline.[55]

Florida adopted the Beach and Shore Preservation Act (BSPA)[56] in 1961,[57] declaring beach erosion "a serious menace to the economy and general welfare of the people."[58] The state legislature's response to rampant beach erosion was to declare it a "necessary governmental responsibility to properly manage and protect Florida beaches"[59] and to "make provision for beach

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[51] BUREAU OF BEACHES & COASTAL SYS., FLA. DEP'T OF ENVTL. PROT., CRITICALLY ERODED BEACHES IN FLORIDA 1 (2007), *available at* http://www.dep.state.fl.us/beaches/publications/pdf/CritEroRpt7-11.pdf; *Beach Erosion Control Program (BECP)*, *supra* note 48.

[52] S. Brent Spain, *Florida Beach Access: Nothing but Wet Sand?*, 15 J. LAND USE & ENVTL. L. 167, 169 (1999).

[53] *See* Theresa Bixler Proctor, *Erosion of Riparian Rights Along Florida's Coast*, 20 J. LAND USE & ENVTL. L. 117, 155 (2004).

[54] *See id.* (quoting Bd. of Trs. of the Internal Improvement Trust Fund v. Sand Key Assocs., 512 So. 2d 934, 936 (Fla. 1987)) (defining "accretion" as "the 'gradual and imperceptible accumulation of land along the shore or bank of a body of water' ").

[55] FLA. CONST. art. X, § 11 ("The title to lands under navigable waters . . . which have not been alienated, including beaches below mean high water lines, is held by the [S]tate . . . in trust for all the people. Sale of such lands may be authorized by law, but only when in the public interest. Private use of portions of such lands may be authorized by law, but only when not contrary to the public interest.").

[56] FLA. STAT. §§ 161.011-.45 (2005).

[57] Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592, 2599 (2010).

[58] *Id.* § 161.088.

[59] *Id.*

restoration and nourishment projects."[60] Funding of the state's beach management plan is justified by the "legislative finding that erosion of the beaches . . . is detrimental to tourism, . . . further exposes the state's highly developed coastline to severe storm damage, and threatens beach-related jobs, which, if not stopped, may significantly reduce state sales tax revenues."[61] The Florida Department of Environmental Protection (DEP) is responsible for identifying those beaches that are critically eroded and authorizing funding for renourishment projects.[62]

A. Beach Restoration Projects: Fixing Boundary Lines

The statute defines beach and shore preservation to include "erosion control[,] . . . hurricane protection[,] . . . coastal flood control, shoreline and offshore rehabilitation, and regulation of work and activities likely to affect the physical condition of the beach or shore."[63] Beach restoration is "the placement of sand on an eroded beach for the purposes of restoring it,"[64] while beach nourishment is "the maintenance of a restored beach by the replacement of sand."[65] A beach restoration and nourishment project must be (1) in a critically eroded shoreline, (2) consistent with the state's beach management plan, and (3) designed to reduce

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[60] *Id.* The statute also expressly references the state's recognition of "the need to protect private structures and public infrastructure from damage or destruction caused by coastal erosion." *Id.* § 161.085(1). The legislature further recognized beaches and coastal barrier dunes as representing "one of the most valuable natural resources" and the need to protect them "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." *Id*. § 161.053(1)(a).

[61] *Id.* § 161.091(3). The statute makes it clear, however, that preservation efforts and state appropriations should concentrate on "the state's most severely eroded beaches" and on preventing "further adverse impact caused by improved, modified, or altered inlets, coastal armoring, or existing upland development." *Id*. § 161.101(14).

[62] *Id.* § 161.101(1)-(2). State funding covers up to seventy-five percent of the project costs, and local funding accounts for the balance of project costs. *Id.* § 161.101(1). In deciding funding priorities, the DEP must consider ten criteria. *See id.* § 161.101(14)(a)-(j).

[63] *Id.* § 161.021(2).

[64] *Id.* § 161.021(4).

[65] *Id.* § 161.021(3).

upland damage from altered inlets, coastal armoring, or existing development.[66]

When a renourishment project is undertaken, a survey of the shoreline is conducted in order to determine the areas of the beach that are in need of restoration and to locate an erosion control line (ECL).[67] In Florida, the Board of Trustees of the Internal Fund (Board) holds title to Florida's submerged tidal lands on behalf of the state.[68] As such, the BSPA vests the Board with the authority to set the ECL for renourishment projects.[69] The Board must provide notice to all riparian owners of upland property within 1000 feet of the shoreline[70] and hold a public hearing on the proposed ECL.[71] In making a determination on the location of the ECL, the Board must "be guided by the existing line of mean high water, . . . the extent to which erosion or avulsion has occurred, and the need to protect existing ownership of as much upland as . . . possible."[72] In the event that a renourishment project involves the taking[73] of upland private property (via the setting of the ECL), the state must initiate condemnation proceedings to compensate riparian owners.[74]

Once the Board approves and records an ECL's location along a segment of the shoreline, the ECL permanently fixes the boundary between private property and public land; this replaces the shifting MHWL as the boundary line.[75] The statute provides that the common law will "no longer operate to increase or decrease the proportions of any upland property . . . either by accretion or erosion or by any other natural or artificial process."[76]

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[66] *Id.* § 161.088.
[67] *Id.* § 161.161(3).
[68] *Id.* § 253.12(1).
[69] *Id.* § 161.161(1).
[70] *Id.* § 161.161(4).
[71] *Id.*
[72] *Id.* § 161.161(5).
[73] *See* U.S. CONST. amend. V; Robert Meltz, *Takings Law Today: A Primer for the Perplexed*, 34 ECOLOGY L.Q. 307, 310 (2007) ("Takings law flows from eminent domain: the inherent power of the sovereign to take private property, as principally constrained by the 'public use' and 'just compensation' prerequisites of the Takings Clause.").
[74] FLA. STAT. § 161.141 (2005).
[75] *Id.* § 161.191(1)-(2).
[76] *Id.* § 161.191(2).

In other words, the ECL replaces the MHWL as the boundary between private and public land. With the exception of the right to accretion, upland property owners remain "entitled to all common-law riparian rights[,] . . . including but not limited to rights of ingress, egress, view, boating, bathing, and fishing."[77]

B. Cancellation of the ECL's Effect

There are three situations in which the ECL and its effect on property lines may be cancelled. When this occurs, the boundary between private and public land reverts to the fluctuating MHWL, and the common law right to accretion is restored.[78] First, cancellation will result if construction on an approved renourishment project does not begin within two years of the date on which the ECL is recorded.[79] Second, if the entity[80] responsible for maintaining the beach fails to maintain the beach and the shoreline shifts landward of the ECL as a result, the right to accretion is restored.[81] Third, if "a substantial portion" of the beach covered by an erosion control project moves landward of the ECL, the Board may request the agency responsible for maintaining the beach to restore it to the ECL boundaries.[82] If the agency fails to do so within one year of the request, the Board must cancel the project and vacate the record authorizing the ECL.[83]

C. The Effect of the BSPA on Common Law Property Rights

A beach renourishment project undertaken in Walton County, Florida was challenged by beachfront property owners as an uncompensated taking of their littoral property rights under Florida common law.[84]

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[77] *Id.* § 161.201.

[78] *See id.* § 161.211.

[79] *Id.* § 161.211(1).

[80] In other words, "the state, county, municipality, erosion control district, or other governmental agency." *Id.* § 161.211(2).

[81] *Id.*

[82] *Id.* § 161.211(3).

[83] *Id.*

[84] Walton County v. Stop the Beach Renourishment, Inc., 998 So. 2d 1102, 1105 (Fla. 2008), *aff'd sub nom.* Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592 (2010).

The Walton County case involved a five-mile length of critically-eroded beach in Florida's panhandle. Under local zoning, the land has been developed for tourism with a mix of high-rise hotels, mid-rise condominiums, lower density retail for the use of tourist and residents, and assorted commercial properties. Over $250,000,000 in annual revenue comes from tourism-related activities, which underlies the government's commitment to rebuilding beaches after storm events. Some of this stretch of beach nearly disappeared after hurricane Opal; other parts were severely narrowed. This affected privately owned land and businesses, while limiting public access, including that of tourists, to the beaches. To prevent these revenue losses, a variety of sources were tapped to raise over $16 million to renourish the beach, including state grants, tax surpluses, and bonds.[85]

The plaintiffs owned affected littoral property.[86] Their primary claim was that fixing the property line at the ECL constitutes a taking of their common law right of accretion and, as a corollary, their right to maintain contact with the water.[87] Under common law, "if the beach expanded [seaward] through accretion, that new land would belong to the upland owner."[88] The plaintiffs claimed that "[t]he statute takes that right away, raising the issue of whether there exists [both the] . . . right to accretion" and the right to contact with the water under Florida common law[89] that are affected by the statute and, if so, whether the statute effected a taking under the Constitution.[90] The Supreme Court of Florida held that no taking occurred.[91]

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[85] John R. Nolon & Kristen M. Grzan, *Rising Tides-Changing Title*: Walton County v. Stop the Beach Renourishment, 38 REAL EST. L.J. 392, 393 (2009) (discussing *Walton County*, 998 So. 2d at 1106).

[86] *See* BLACK'S LAW DICTIONARY 1018 (9th ed. 2009) (defining "littoral" as "[o]f or relating to the coast or shore of an ocean, sea, or lake").

[87] Nolon & Grzan, *supra* note 85, at 395.

[88] *Id.*

[89] *Id.*

[90] *Walton County*, 998 So. 2d at 1107 ("[Stop the Beach Renourishment, Inc.,] asserted that section 161.191(1) of the Beach and Shore Preservation Act, which fixes the shoreline boundary after the ECL is recorded, unconstitutionally divests upland owners of all common law littoral rights by severing these rights from the upland. According to [Stop the Beach Renourishment, Inc.], after the

The Florida court explained that Florida common law holds that when a sudden loss or addition of land—an avulsion[92]—occurs, the property line does not move as it does with accretion and erosion; it remains fixed at the former MHWL.[93] Following such an event, both the state and the upland owner have a reasonable time to reclaim their lost lands.[94] Prior case law in Florida established that hurricanes are avulsive events and that the loss of the sovereign's interest in the beach may be recovered by

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recording of the ECL and by operation of section 161.191(1), the State becomes the owner of the land to which common law littoral rights attach because it owns all lands seaward of the ECL. [Stop the Beach Renourishment, Inc.,] further argued that the littoral rights, which are expressly preserved by section 161.201 of the Act, are an inadequate substitute for the upland owners' common law littoral rights that are eliminated by section 161.191.").

[91] *Id.* at 1121 ("[T]he Act, on its face, does not unconstitutionally deprive upland owners of littoral rights without just compensation.").

[92] *See* BLACK'S LAW DICTIONARY 157 (9th ed. 2009) (defining "avulsion" as "[a] sudden removal of land caused by a change in a river's course or by flood").

[93] *Walton County*, 998 So. 2d at 1117.

[94] *Id.*; *see also supra* notes 79-83 and accompanying text (regarding the expiration of the ECL). There is considerable confusion about when, if ever, the right to reclaim land lost to avulsion tolls. California, South Dakota, and Oklahoma, for example, give landowners one year to reclaim land lost by avulsion. *See* CAL. CIV. CODE § 1015 (West 2007); OKLA. STAT. ANN. tit. 60, § 336 (West 1994 & Supp. 2010); S.D. CODIFIED LAWS § 43-17-10 (2004). In contrast, there is case law in New York that says there is no time limit on reclaiming land lost by avulsive events, provided that the original boundaries can be easily identified. *See, e.g.*, Trs. of the Freeholders & Commonalty of Southampton v. Heilner, 375 N.Y.S.2d 761, 773 (N.Y. Sup. Ct. 1975) (discussing New York case law that did "not set a time limit upon the owner's right to reclaim land lost by avulsion provided that the original boundaries can be located or identified"). There is very old case law and commentary by Henry Farnham that refers to the limitation of reclaiming land within a reasonable time. *See* 1 HENRY PHILIP FARNHAM, THE LAW OF WATERS AND WATER RIGHTS § 74, at 331 (1904) ("If a portion of the land of the riparian [or littoral] owner is suddenly engulfed, and the former boundary can be determined or the land reclaimed within a reasonable time, he does not lose his title to it."); *see, e.g.*, Bohn v. Albertson, 238 P.2d 128, 136 (Cal. Dist. Ct. App. 1951) (quoting FARNHAM, *supra*). Beyond that though, there is no discussion as to what that actually means in terms of timeline (One year? Three years? Thirty years?).

self-help on the part of the state.[95] The court explained that the statute authorizing the state to renourish beaches simply codifies the state's common law right to reclaim storm-ravaged lands by fixing the boundary line at the pre-event MHWL.[96]

The plaintiffs petitioned the Supreme Court of the United States for certiorari, asserting that the Supreme Court of Florida "invok[ed] non-existent rules of state substantive law . . . [to] reverse . . . 100 years of uniform holdings that littoral rights are constitutionally protected."[97] They called reinterpretation of common law a "judicial taking" and asked the Court to recognize this judicial redefinition of extant rights, combined with the working of the statute to fix their property line, as a compensable taking under the Fifth and Fourteenth Amendments.[98] The Supreme Court of the United States granted certiorari[99] to determine whether the state court reinterpreted Florida's common law as a pretext for upholding the statute against the plaintiffs' taking claim.[100] The Court found that the Supreme Court of Florida properly interpreted Florida common law and, therefore, that the statute did not take property without just compensation in violation of the Fifth and Fourteenth Amendments.[101]

The majority held that there could be no taking unless property owners could show that they had rights to future exposed land and to "contact with the water superior to the State's right to fill in . . . submerged land,"[102] stating:

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[95] *See* Bd. of Trs. of the Internal Improvement Trust Fund v. Sand Key Assocs., 512 So. 2d 934, 945 n.6 (Fla. 1987) (explaining that a change was avulsive after a hurricane); Hayes v. Bowman, 91 So. 2d 795, 799-800 (Fla. 1957) (holding that the state can convey the right to fill to private party).

[96] *Walton County*, 998 So. 2d at 1115.

[97] Petition for Writ of Certiorari at 15, Stop the Beach Renourishment, Inc., v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592 (2010) (No. 081151); *see Stop the Beach*, 130 S. Ct. at 2610-11.

[98] Petition for Writ of Certiorari, *supra* note 97, at 40; *see* U.S. CONST. amend. V; *Id.* amend. XIV.

[99] Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 129 S. Ct. 2792-93 (2009).

[100] *Id*. at 2610-11.

[101] *Id.* at 2612. All of the Justices joined in Part IV of the Court's decision. *Id*. at 2597.

[102] *Id.* at 2610-11.

> Under [Stop the Beach Renourishment, Inc.]'s theory, because no prior Florida decision had said that the State's filling of submerged tidal lands could have the effect of depriving a littoral owner of contact with the water and denying him future accretions, the Florida Supreme Court's judgment . . . abolished those two easements to which littoral property owners had been entitled. This puts the burden on the wrong party. There is no taking unless petitioner can show that, before the [Supreme Court of Florida]'s decision, littoral-property owners had rights to future accretions and contact with the water superior to the State's right to fill in its submerged land.[103]

The Court ruled that there could be no such showing since, as owner of submerged land adjacent to beachfront property, the state has the right to fill that land.[104] The Court noted that "Florida law as it stood before the decision below allowed the State to fill in its own seabed, and the resulting sudden exposure of previously submerged land was treated like an avulsion for purposes of ownership. The right to accretions was therefore subordinate to the State's right to fill."[105] The decision noted that the exposure of land previously submerged belongs to the state "even if it interrupts the [beachfront property] owners' contact with the water."[106]

Since no taking was found in the case, the Court's discussion regarding whether a judicial taking occurred was moot. Much of the decision, nonetheless, was devoted to an academic discussion of the matter.[107] A majority was not able to agree on what a judicial taking might be,[108] with some of the Justices opining that the Court should not have considered the matter.[109]

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[103] *Id.*

[104] *Stop the Beach*, 130 S. Ct. at 2611.

[105] *Id.*

[106] *Id.*

[107] *See id.* at 2601-10 (plurality opinion).

[108] *Compare id.* at 2601-07 (plurality opinion), *with id*. at 2613-18 (Kennedy, J., concurring in part and concurring in the judgment).

[109] *See Stop the Beach*, 130 S. Ct. at 2613 (Kennedy, J., concurring in part and concurring in the judgment); *id.* at 2618 (Breyer, J., concurring in part and concurring in the judgment).

III. STATE-MANAGED RETREAT FROM THE RISING SEA

The objectives pursued by beach renourishment projects in Florida are to repair the damaging effects of sea level rise and storm surges and to halt the progress of inundation[110] . With nearly sixty percent of the state's sandy shoreline suffering erosion,[111] one wonders how economically sustainable this objective is. If "thoughtful precaution" suggests that coastal states plan, on average, for a one-meter rise in sea level by the end of the century,[112] one wonders how environmentally sustainable such an objective is.

Other states have adopted a different posture, attempting to manage a qualified retreat as inundation, erosion, and avulsion occur.[113] Some state statutes permit the acquisition of public access easements through eminent domain, voluntary sales, or donations of conservation easements.[114] Others prohibit building bulkheads, seawalls, residences, or commercial buildings in vulnerable areas or require that structures be removed as the high tide line moves landward.[115] Common law principles can be interpreted to create public easements to access a portion of littoral property as the sea level rises and erosion and avulsion occur.[116] These techniques, in the aggregate, have been termed "rolling easements."[117]

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[110] *See, e.g.*, *Beach Restoration and Coastal Construction*, FLA. DEP'T ENVTL. PROT. (2012), http://www.dep.state.fl.us/mainpage/em/beach.htm (describing actions and repairs to Florida coastlines in the wake of hurricanes and natural erosion).

[111] *See supra* notes 50-51 and accompanying text.

[112] *See supra* note 28 and accompanying text.

[113] *See infra* Part IV for numerous examples.

[114] *See, e.g.*, DEL. CODE ANN. tit. 7, § 6810(a) (West 2011) (permitting the state, through condemnation proceedings, to take beach property for ensuring public access); N.C. GEN. STAT. ANN. § 105-151.12(a) (2009) (permitting the donation of property that is useful for public beach access).

[115] *See, e.g.*, TEX. NAT. RES. CODE ANN. §§ 61.011(c), (d)(6), .013(a) (West 2001) (requiring the Attorney General to prevent "encroachments on and interferences with" public access to beaches).

[116] Mikeska v. City of Galveston, 451 F.3d 376, 378 (5th Cir. 2006).

[117] James G. Titus, *Rising Seas, Coastal Erosion, and the Takings Clause: How to Save Wetlands and Beaches Without Hurting Property Owners*, 57 MD. L. REV. 1279, 1313 (1998) [hereinafter Titus, *Rising Seas*]; *see also* James G. Titus, *Does the U.S. Government Realize That the Sea is Rising? How to*

Restructure Federal Programs So That Wetlands and Beaches Survive, 30 GOLDEN GATE U. L. REV. 717, 734-35 (2000) [hereinafter Titus, *Wetlands and Beaches*]. The same year that Titus published his second article on rolling easements, the American Law Institute published the *Restatement (Third) of Property: Servitudes*. *See* RESTATEMENT (THIRD) OF PROP.: SERVITUDES (2000). It reduced the number of servitude categories to three: easements, covenants, and profits (the right to come on the owner's land and to remove natural resources such as timber, gravel, or sand from the land). *Id.* §§ 1.1(2), 1.2(2). Most of the techniques Titus describes as rolling easements are properly classified as covenants under the *Restatement*. *Compare* Titus, *Wetlands and Beaches*, *supra*, at 737-39 (suggesting many uses of rolling easements, such as prohibiting the construction of "bulkheads or any other structures that interfere with naturally migrating shores"), *with* RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 1.3 (2000) (showing that a restrictive covenant "limits permissible uses of land"). Prior to the *Restatement*'s publication, courts used the term "negative easements" to describe some rights that limited the use of the land by the servient owner. *See* Evans v. Pollock, 796 S.W.2d 465, 466 (Tex. 1990). It was the intent of the *Restatement* to comb out the profusion of confusing terms that had proliferated and confused the law of servitudes as American courts considered and developed doctrine defining the rights that can be created in the land of others. *See, e.g.*, RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 1.2 cmt. h (2000) (demonstrating the confusion in the law with respect to negative easements and restrictive covenants and stating that because of this confusion, the term "negative easement" is no longer used). In common law terms, an easement gives its owner the right to have affirmative access across the property—to use rather than possess it. *See* BLACK'S LAW DICTIONARY 585 (9th ed. 2009) (describing an easement as "[a]n interest in land owned by another person, consisting in the right to use or control the land"). The common law right to prohibit structures or to require their removal is considered a real, or restrictive, covenant. *See, e.g.*, Fuller v. Hill Properties, Inc., 259 So. 2d 398, 400-01 (La. Ct. App. 1972) (describing restrictive covenants generally and addressing a particular restrictive covenant that "prohibit[ed] the building of any type of structure other than a single-family residence"). In the *Restatement*'s terms, it is simply a covenant. *See* RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 1.3 (2000). Easements and covenants are both servitudes; they are private agreements that impose requirements on the use of the land. *See id.* § 1.1 (defining servitudes and stating that covenants and easements are servitudes). Once created, they constitute valuable interests in real property. *See id.* §§ 1.1-.3. Covenants, as property rights, can be acquired by the state through donation, voluntary transfer, or eminent domain. *See supra* note 114 and accompanying text. Coastal land use regulations adopted by state and local governments may prohibit certain uses, such as bulkheads and seawalls, or require the removal of threatened or damaged structures. *See supra* note 115 and accompanying text. Such regulations, adopted under the police power, impose restrictions on land use; landowners, under American property law, are deemed

A. Rolling Easements Under Texas Law

Under Texas common law, like that of Florida, the state owns legal title to beaches up to the mean high tide line (MHTL).[118] Landward of that line, the public may enjoy an easement to use a portion of the beach owned by the private owner; this public right arises either by (1) creation by prescription, (2) recognition of the right as one the public has enjoyed since time immemorial, or (3) dedication of the easement to the public.[119] Texas decisions, like those of the Florida courts, recognize that the property boundary between state and littoral ownership moves imperceptibly and gradually through erosion and accretion.[120] Under Texas law, where a public easement has been acquired by prescription, recognized right, or dedication, that easement moves gradually as well.[121] Under normal circumstances, the public enjoys the right to access and use the land between the MHTL and the natural vegetation line along much of the Texas shoreline.[122]

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to hold their property subject to reasonable governmental regulation. *See* Pa. Coal Co. v. Mahon, 260 U.S. 393, 415 (1922) ("[W]hile property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."). Conservation easements are statutory creations that legalize agreements requiring good environmental stewardship of land and authorize the sale or donation of such easements to land trusts and governmental entities, as permitted under the state statutes. *See* UNIF. CONSERVATION EASEMENT ACT § 1(1) (1982) (defining conservation easement); *see also* Jessica E. Jay, *When Perpetual Is Not Forever: The Challenge of Changing Conditions, Amendment, and Termination of Perpetual Conservation Easements*, 36 Harv. Envtl. L. Rev. 1, 3 (2012) (discussing the definition of conservation easements). Most states have adopted some form of the Uniform Conservation Easement Act promulgated in 1982 by the National Conference of Commissioners on Uniform State Laws. *See id.* at 26. Exacted conservation easements refer to conditions on land use approvals that require a conservation easement to be placed on the land to mitigate an adverse impact that the project in question will have on the community. Jessica Owley Lippman, *The Emergence of Exacted Conservation Easements*, 84 NEB. L. REV. 1043, 1045 (2006) (defining and explaining exacted conservation easements).

[118] *See* Luttes v. State, 324 S.W.2d 167, 187, 191 (Tex. 1958).

[119] TEX. NAT. RES. CODE ANN. § 61.013(a) (West 2001).

[120] *See* Severance v. Patterson, No. 09-0387, 2012 WL 1059341, at *14 (Tex. Mar. 30, 2012); *Luttes*, 324 S.W.2d at 189-90.

[121] TEX. NAT. RES. CODE ANN. § 61.011(a).

[122] *See id.*

B. The Open Beaches Act and the Severance *Case*

Carol Severance bought a parcel of property in 2005 on Galveston Island's West Beach.[123] When she bought the property, she received a disclosure statement indicating that the parcel could become part of the public beach as a result of natural processes.[124] This disclosure statement was mandated by the Texas Open Beaches Act (OBA),[125] which provides the state with a mechanism to require the removal of structures located on the public beach if "the public has acquired a right of use or easement to or over the area . . . by prescription, dedication, or . . . by virtue of continuous right in the public."[126]

Within a few months of Severance's purchase, Hurricane Rita severely damaged the shoreline and submerged a portion of her property; as a result, the entirety of her house was located seaward of the natural vegetation line, but still on the dry beach that she owned.[127] In June 2006, Severance received a demand from the Texas General Land Office that she remove the house because it

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[123] *Severance*, 2012 WL 1059341, at *3.

[124] *Id.* at *10.

[125] *See* TEX. NAT. RES. CODE ANN. § 61.025(a) ("[Owners of] structures erected seaward of the vegetation line . . . or that become seaward of the vegetation line as a result of . . . processes such as shoreline erosion are subject to a lawsuit by the State of Texas to remove the structures.").

[126] *See id.* § 61.013(a). Titus, *Rising Seas*, *supra* note 117, borrowed the term "rolling easement" from the common law of Texas. The article cites two 1986 Texas cases that "recognize[ed] the beach as a rolling easement because otherwise the area of public access would disappear as the shore erodes," Titus, *Rising Seas*, *supra* note 117, at 1375 n.398 (citing Feinman v. State, 717 S.W.2d 106, 111 (Tex. App. 1986)), and held that "[b]ecause legal title shifts with the natural movements of the beach, this [c]ourt has concluded that the public easement also shifts with the natural movements of the beach." *Id.* (citing Matcha v. Mattox, 711 S.W.2d 95, 100 (Tex. App. 1986)). In 1958, the case of *Luttes v. State*, 324 S.W.2d 167 (Tex. 1958), settled the issue of whether the public trust ownership extended to the line of natural vegetation. *See id.* at 168. The court held that it did not and established the landward boundary of the public trust as the MHTL. *Id.* at 187.

[127] *Severance*, 2012 WL 1059341, at *3. In 1999, the house was on a list of Texas homes located seaward of the vegetation line. *Id.* at *10. In 2004, it was again determined that the house was entirely or partly on the dry beach, but did not threaten the public health or safety. *Id.* At that time, it was subject to a two-year moratorium order. *Id.* The moratorium expired in June 2006. *Id.*

was located on the public's beachfront easement and interfered with the public's use of the beach.[128] The state claimed that, under Texas common law, the public's easement in the beach rolled landward and was reestablished after an avulsive event between the new MHTL and the line of natural vegetation.[129] She disagreed and sued in federal court, arguing that the state had not proven that her property was subject to a public easement.[130]

The legal issue presented in the *Severance v. Patterson*[131] case was whether the public access to the property rolled onto her parcel as a result of the destruction wrought by Hurricane Rita.[132] The district court dismissed the case, agreeing with the state's position that the easement had rolled onto her property.[133] The United States Court of Appeals for the Fifth Circuit certified to the Supreme Court of Texas the critical question of whether Texas law recognizes a rolling public access easement across beachfront property in these circumstances.[134] The court found that state law does not.[135]

Texas law, unlike Florida law, does not embrace the avulsion doctrine that gives property owners the right to reclaim land lost to sudden avulsive acts.[136] In other words, the MHTL, whether changed by gradual or sudden movements, always represents the

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[128] *Id.* A second letter indicated that if she complied by October 2006, the state would give her $40,000 to assist in the house's removal and/or relocation. *Severance*, 2012 WL 1059341, at *10.

[129] *Id.* at *2-3.

[130] *See id*. at *3.

[131] *Id.* at *1.

[132] *Id.* at *6.

[133] *Id.* at *4 (citing Severance v. Patterson, 485 F. Supp. 2d 793, 802-04 (S.D. Tex. 2007), *aff'd in part*, 566 F.3d 490 (5th Cir. 2009), *certifying questions to* 2012 WL 1059341 (Tex. Mar. 30, 2012)) ("[A]fter an easement to private beachfront property ha[s] been established between the mean high tide and vegetation lines, it 'rolls' onto new parcels of realty according to natural changes to those boundaries.").

[134] Severance v. Patterson, 566 F.3d 490, 503-04 (5th Cir. 2009), *certifying questions to* 2012 WL 1059341 (Tex. Mar. 30, 2012).

[135] *Severance*, 2012 WL 1059341, at *13-14.

[136] *See id.* at *11 ("We have never applied the avulsion doctrine to upset the [MHTL] boundary as established by *Luttes*.").

boundary line between the land of the state and that of the littoral owner.[137] The court made the following determination:

> [W]hile losing property to the public trust as it becomes part of the wet beach or submerged under the ocean is an ordinary hazard of ownership for coastal property owners, it is far less reasonable . . . to hold that a public easement can suddenly encumber an entirely new portion of a landowner's property . . . that was not previously subject to that right of use.[138]

Although the public always owns the wet beach,[139] whether newly created or not, "when drastic changes expose new dry beach and the former dry beach that may have been encumbered by a public easement is now part of the wet beach or completely submerged[,] . . . the State must prove a new easement on the area."[140] Because the state order required the removal of structures belonging to Severance that were on the dry beach above the MHTL, the effect of the court's decision will be to invalidate the order requiring removal.

In Florida, state policy draws a line in the sand, fixing the boundary of littoral property ownership at the ECL established by beach renourishment projects.[141] Florida law permits the state and private littoral owners a reasonable time to reestablish their preavulsive event boundaries at the former MHWL.[142] This contrasts with the approach in Texas, where the law permanently establishes a new beach boundary at the MHTL created by an avulsive event that has moved that line landward, no matter how

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[137] *See id*. at *8 ("A person purchasing beachfront property along the Texas coast does so with the risk that [his] property may eventually, or suddenly, recede into the ocean. When a beachfront property recedes seaward and becomes part of the wet beach or submerged under the ocean, a private property owner loses that property to the public trust.").

[138] *Id*. at *12.

[139] Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592, 2598 (2010).

[140] *Severance*, 2012 WL 1059341, at *13.

[141] *Stop the Beach*, 130 S. Ct. at 2599.

[142] *Id.*

far.[143] Under Texas common law, the public has access over privately owned beaches between the MHTL and the natural vegetation line.[144] Under the OBA, the state of Texas has the right to remove structures on the public beach.[145] Under the *Severance* case, however, the public easement does not roll landward when storms suddenly push the MHTL landward.[146] This leaves the public without its historical access and limits the right of the state to remove structures that are in harm's way.

IV. A FRAMEWORK FOR INTEGRATED COASTAL MANAGEMENT

Such contrasts and challenges in the law of coastal states in the United States abound, while sea level rise persistently and equally affects them all. States need more resources and technical assistance as they search for the most effective strategies to adapt to the rising sea. Local governments also need guidance, resources, and state-delegated land use authority to respond to changing coastal conditions. Meanwhile, the private sector seeks predictability and uniformity in coastal policy, along with a role in changing regulations in which they have reasonable investment-backed expectations.

This section reviews the existing policies and initiatives of federal, state, and local governments, demonstrating that numerous strategies are being employed and suggesting that more effective partnerships across jurisdictional and sectoral lines are needed to respond to the gradual movement and sudden lurches of the sea upon the beach and beyond. How a national strategy can be cobbled together to harmonize discordant governmental and private sector action should be guided by two notions: the use of an interjurisdictional framework law and the adoption of a reflexive law approach to create that framework.

A framework law, according to the United Nations Environmental Programme (UNEP), is one that organizes communications and procedures within a nation's decision-making

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[143] *Severance*, 2012 WL 1059341, at *14.
[144] *Id*. at *7 (citing Luttes v. State, 324 S.W.2d 167, 187-88 (Tex. 1958)).
[145] TEX. NAT. RES. CODE ANN. § 61.0183(a)(1)-(2) (West Supp. 2009).
[146] *Severance*, 2012 WL 1059341, at *13-14, *20.

system.[147] UNEP's recommended framework law "lays down the basic [legal] principles without any attempt at codification."[148] A framework law covers "the entire spectrum of cross-sectoral environmental issues and [facilitates] a more cohesive, coordinated and holistic approach to environmental management."[149] In other words, it defines the actors within the system, assesses their competencies, allocates roles for each, and ensures connectivity and communication among them as components of the system: a network capable of communicating about what is happening to it and how it must react to survive and thrive.[150]

A spate of recent scholarship discusses the utility of reflexive law regimes in the context of land use planning.[151] Scholars suggest that positive or formal lawmaking, where higher orders of government create and impose standards on lower-order governments and constituents,[152] is not up to the task of managing highly complex, multifaceted problems such as those created by sea level rise.[153] Reflexive law approaches create processes that involve all relevant government agencies and private sector and

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[147] UNITED NATIONS ENVTL. PROGRAMME, TRAINING MANUAL ON INTERNATIONAL ENVIRONMENTAL LAW 16 (2007), http://hqweb.unep.org/environmentalgovernance/LinkClick.aspx?fileticket=VxBzgNZpi38%3d&tabid=383&mid=1024.

[148] *Id.*

[149] *Framework Laws*, ESCAP VIRTUAL CONFERENCE, http://www.unescap.org/drpad/vc/orientation/legal/2F_frame_intro.htm (last updated Oct. 29, 2003).

[150] UNITED NATIONS ENVTL. PROGRAMME, *supra* note 147.

[151] *See, e.g.*, John C. Dernbach, *Navigating the U.S. Transition to Sustainability: Matching National Governance Challenges with Appropriate Legal Tools*, 44 TULSA L. REV. 93, 95 (2008); Sanford E. Gaines, *Reflexive Law As a Legal Paradigm for Sustainable Development*, 10 BUFF. ENVTL. L.J. 1, 2 (2003); Tim Iglesias, *Housing Impact Assessments: Opening New Doors for State Housing Regulations While Localism Persists*, 82 OR. L. REV. 433, 435 (2003); Eric W. Orts, *Reflexive Environmental Law*, 89 NW. U. L. REV. 1227, 1231 (1995); *see also* Clayton P. Gillette, *Allocating Government for Disaster Mitigation*, *in* LOSING GROUND: A NATION ON EDGE 251, 251 (John R. Nolon & Daniel B. Rodriguez eds., 2007).

[152] *See* BLACK'S LAW DICTIONARY 1280 (9th ed. 2009).

[153] *See, e.g.*, Dernbach, *supra* note 151, at 93-95 (asserting that the United States government has failed in creating a comprehensive approach to address the complex issues of sustainable development).

civic stakeholders in developing and achieving performance-based solutions.[154] Such laws encourage reciprocal reflection within and among governmental agencies, regulated entities, and involved stakeholders about their performance regarding sustainable development.[155] Fortunately, the United States adopted a framework structure for coastal development and conservation in the early 1970s.

A. National Strategy: Building on the Coastal Zone Management Act

Federal, state, and local governments all have legal jurisdiction over, and legitimate interests in, coastal development and conservation. The principal federal enactment in this field is the Coastal Zone Management Act of 1972 (CZMA).[156] The CZMA encourages states to create coastal management plans and involve their local coastal communities in the planning and regulatory enterprise.[157] The statute fosters cooperation among all three levels of government.[158] It is an existing framework law that exhibits reflexive law behaviors. It is forty years old this year,[159] however, and has not been updated to include what we have learned about climate change management since before the Rio Accords were adopted twenty years ago.[160]

The CZMA contains a solid foundation for intergovernmental coastal policy and action. It requires state coastal plans to include the following: (1) coastal zone boundaries, (2) permissible uses in the zone, (3) areas of particular concern, (4) the state's method of

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[154] David E. Booher & Judith E. Innes, *Network Power in Collaborative Planning*, 21 J. PLAN. EDUC. & RESEARCH 221, 225 (2002).

[155] *Id.*

[156] 16 U.S.C. §§ 1451-66 (2006).

[157] *Id.* § 1451(i).

[158] *Id.* § 1452(4)-(5).

[159] *See* Coastal Zone Management Act of 1972, Pub. L. No. 92-583, 86 Stat. 1280 (codified as amended at tit. 16, §§ 1451-66)).

[160] *See* Act of Nov. 4, 1992, Pub. L. No. 102-587, sec. 2205, 106 Stat. 5050; *History of the Convention*, CONVENTION BIOLOGICAL DIVERSITY, http://www.cbd.int/history/ (last visited Mar. 18, 2012) (discussing the Rio Accords, which were ratified in June 1992 and created "an international legal instrument for the conservation and sustainable use of biological diversity").

controlling outcomes, (5) "guidelines on priorities of uses," (6) the allocation of authority to state agencies and local governments, (7) a planning process for protection of public coastal areas of value, (8) a process for siting energy facilities and managing their impacts, and (9) a process for studying and managing shoreline erosion.[161] Importantly, with respect to sea level rise, the CZMA also requires that states cooperating with the federal government establish a process for studying and managing shoreline erosion.[162]

Congress adopted the CZMA in response to a report of the Stratton Commission.[163] The Commission understood the proper role of state and local governments; it recommended that coastal management take place at the local rather than the national level.[164] Congress agreed; the CZMA established a process for the development of individual state coastal zone management programs.[165] Eschewing penalties and embracing incentives, the CZMA urges, but does not require, state implementation.[166] It

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[161] tit. 16, § 1455(d)(2)(A)-(I).

[162] *Id.* § 1455(d)(2)(I).

[163] *See generally* COMM'N ON MARINE SCI., ENG'G & RES., OUR NATION AND THE SEA: A PLAN FOR NATIONAL ACTION (Jan. 1969), *available at* http://www.lib.noaa.gov/noaainfo/heritage/stratton/title.html [hereinafter STRATTON REPORT].

[164] *See* tit. 16, § 1452(2). The report noted:

> The [s]tates are subject to intense pressures from the county and municipal levels, because coastal management directly affects local responsibilities and interests. Local knowledge frequently is necessary to reach rational management decisions at the [s]tate level, and it is necessary to reflect the interests of local governments in accommodating competitive needs. . . . [T]he [s]tates must be the focus for responsibility and action in the coastal zone. The State is the central link joining the many participants, but in most cases, the [s]tates now lack adequate machinery for [the] task. An agency of the [s]tate is needed with sufficient planning and regulatory authority to manage coastal areas effectively and to resolve problems of competing uses. Such agencies should be strong enough to deal with the host of overlapping and often competing jurisdictions of the various [f]ederal agencies. Finally, strong [s]tate organization is essential to surmount special local interests, to assist local agencies in solving common problems, and to effect strong interstate cooperation.

STRATTON REPORT, *supra* note 163, at 56-57.

[165] *See* tit. 16, §§ 1452(2), 1455(a).

[166] *See id.* § 1452(2).

encourages states to use their legal authority to regulate coastal areas without federal agency interference, if they adopt policies consistent with the standards of the CZMA.[167] It also provides for grants to states to help them prepare coastal plans and establish administrative agencies and mechanisms to implement them.[168]

The federal contribution to implementation helps states solve the resource problem. It provides an impetus to act and promises resources when states comply. Once a state has created an eligible management plan, it is eligible for two types of grants: coastal resource improvement grants[169] and coastal zone enhancement grants.[170] These grants can be used for stabilization and resiliency projects, including the improvement of public access, and structural reinforcement projects, such as the rehabilitation of piers, stabilization of shorelines, and replacement of pilings.[171] Resiliency projects are funded as well: they involve protecting, restoring, or enhancing coastal wetlands; eliminating development in high-hazard areas; and controlling coastal growth.[172]

Congress amended the CZMA in 1990,[173] updating it in several ways, including the identification of rising sea levels as a threat.[174] Specifically, the findings section of the CZMA was

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[167] *Id.*

[168] *See id*. § 1455.

[169] *Id.* § 1455a.

[170] *Id.* § 1456b.

[171] *Id.* § 1455a(b)(1)-(4), (c)(2)(C)(i)-(iii).

[172] *Id.* § 1456b(a)(1)-(9).

[173] Coastal Zone Act Reauthorization Amendments of 1990, Pub. L. No. 101-508, 104 Stat. 1388-299 (codified as amended at tit.16, §§ 1451-66)).

[174] *Id.* sec. 6203(a)(3), § 1451(l).

> Global warming results from the accumulation of man-made gases, released into the atmosphere from such activities as the burning of fossil fuels, deforestation, and the production of chlorofluorocarbons, which trap solar heat in the atmosphere and raise temperatures worldwide. Global warming could result in significant global sea level rise by 2050 resulting from ocean expansion, the melting of snow and ice, and the gradual melting of the polar ice cap. Sea level rise will result in the loss of natural resources such as beaches, dunes, estuaries, and wetlands, and will contribute to the salinization of drinking water supplies. Sea level rise will also result in damage to properties, infrastructures, and public works. There is a growing need to plan for sea level rise.

augmented with this language: "Because global warming may result in a substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence."[175] As of 1990, it became national policy to assist states in the following:

> the management of coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm surge, geological hazard, and erosion-prone areas and in areas likely to be affected by or vulnerable to sea level rise, land subsidence, and saltwater intrusion, and by the destruction of natural protective features such as beaches, dunes, wetlands, and barrier islands.[176]

Likewise, "the study and development . . . of plans for addressing the adverse effects upon the coastal zone of land subsidence and of sea level rise"[177] became CZMA policy.

Congress has attempted but failed to adopt further amendments to the CZMA that would have incorporated more urgent warnings of the threat of sea level rise, stimulated and assisted implementation of these policy pronouncements, and achieved closer coordination with states and local governments.[178] In the absence of such statutory improvements, states and local governments are taking various steps, either in concert with somewhat-dated CZMA policies or independently, to modernize their coastal policies, regulations, incentives, and expenditures.[179]

Id. sec. 6202(7).

[175] tit. 16, § 1451(l).

[176] *Id*. § 1452(2)(B).

[177] *Id*. § 1452(2)(K).

[178] Coastal Zone Reauthorization Act of 2008, H.R. 5451, 110th Cong. (2008); Coastal Zone Enhancement Reauthorization Act of 2007, S. 1579, 110th Cong. (2007).

[179] *See generally New Jersey Coastal Management Program*, NEW JERSEY GOV'T (2006), http://www.nj.gov/dep/cmp/309_combined_strat_7_06.pdf (focusing on New Jersey's coastal management program assessment and enhancement strategy with regard to the CZMA); *The Federal Coastal Management Act and Programs Designed to Implement the Act*, SHORE11.ORG, http://www.shore11.org/files/delawarebay/Delaware%20Bay%20Protection%20

A brief listing of some state and local actions illustrates how helpful a more potent framework law would be in coordinating and leveraging critically needed coastal actions.

B. State Actions

1. Conservation Easements and Tax Incentives

Nearly all state legislatures have adopted statutes that allow the creation of conservation easements that limit development on privately owned land and require the proper stewardship of the environmental functions of the land.[180] Where existing common law easements are destroyed, property owners can restore public access and limit development on beachfront property by donating or selling conservation easements to local governments and land trusts.[181] In some states, this is incentivized by providing tax credits or property tax reductions to the landowner.[182]

Many states have legislation providing for reduced assessments for real property tax purposes when land is

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Paper%20Final%20Section%20II-B.pdf (last visited Mar. 15, 2012) (explaining New Jersey's and Delaware's attempt to improve the CZMA); *The Role of Coastal Management Programs in Adaption to Climate Change*, COASTAL STATE ORGS. (Sept. 2008), http://www.coastalstates.org/wp-content/uploads/2010/07/CSO-2008-Climate-Change-Report2.pdf (providing information about states located on the coast and their coastal program and adaption strategies for climate change that are independent of the CZMA).

[180] *See Legislative Fact Sheet - Conservation Easement Act*, UNIFORM LAW COMM'N, http://uniformlaws.org/LegislativeFactSheet.aspx?title=Conservation%20Easement%20Act (last visited Feb. 21, 2012).

[181] *See* Jessica Owley, *The Enforceability of Exacted Conservation Easements*, 36 VT. L. REV. 261, 261-63 (2011) (discussing conservation easements); *Bodega Land Trust*, BODEGANET.COM, 6, http://www.bodeganet.com/landtrust/documents/15yrreport6_17_08sm.pdf (illustrating the importance of conservation easements for property owners and the public, which stems from the inadequacy of common law easements) (last visited Mar. 16, 2012).

[182] *State and Local Tax Incentives*, LAND TRUST ALLIANCE, http://www.landtrustalliance.org/policy/tax-matters/campaigns/state-tax-incentives (last visited Mar. 15, 2012) (providing examples of various state approaches to tax credits and property tax reductions).

encumbered by a conservation easement.[183] Since conservation easements limit the capacity of a property to be developed, its appraised value for real property tax purposes can be lowered by local appraisers.[184] Several states award conservation income tax credits to incentivize the private creation of conservation easements.[185] South Carolina has adopted a typical approach: the state provides a tax credit to any taxpayer that received a federal income tax charitable deduction for donating conservation easements.[186] Those taxpayers may take a credit "equal to [25] percent of the total . . . deduction attributable to the gift of land."[187] The total credit allowed in any given year is limited to $52,500.[188] Other states that provide tax credits are California, Connecticut, Delaware, Georgia, Maryland, New York, and Mississippi.[189]

There is a limit, of course, to how far states and local governments can go in forgoing tax payments in the interest of coastal conservation. To encourage more states to employ such incentives and increase the relatively modest resources available, Congress should consider funneling additional funds to states and localities under the CZMA framework to help them restore public access and limit development on coastal land threatened by sea level rise. Federal agencies can provide coastal vulnerability maps, GIS technology, best practices regarding induced and exacted conservation easements, and sample state laws regarding tax incentives. It is a logical and traditional function of the federal government to develop and provide technology, promulgate model

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[183] *See, e.g.*, MINN. STAT. ANN. § 273.117(a)-(b) (West 2007); N.J. STAT. ANN. § 13:8B-7 (West 2003); OR. REV. STAT. § 271.785 (2007).

[184] Dominick P. Parker, *Cost-Effective Strategies for Conserving Private Land: An Economic Analysis for Land Trusts and Policy Makers*, PERC.ORG, 9 (Oct. 2002), http://www.perc.org/pdf/land_trusts_02.pdf.

[185] *See State and Local Tax Incentives*, *supra* note 182.

[186] S.C. CODE ANN. § 12-6-3515(A) (2006).

[187] *Id.*

[188] *Id*. § 12-6-3515(C)(2).

[189] To compare the structure and applicability of these state tax credit programs, see CAL. REV. & TAX. CODE. § 23630 (West 2004); CONN. GEN. STAT. ANN. § 12-217dd (West 2012); DEL. CODE ANN. tit. 30, § 1816 (2009 & Supp. 2010); GA. CODE ANN. § 48-7-29.12 (2009); MD. CODE ANN., TAX-GEN. § 10-723 (LexisNexis 2010); MISS. CODE ANN. § 27-7-22.21 (2006); N.Y. TAX LAW § 606(kk) (McKinney 2012).

laws and best management practices, and provide for technical assistance to interested state and local governments.

2. Regulating to Protect the Coast

The resources of the federal government can also be employed through the CZMA to help states with regulatory efforts, such as prohibiting shoreline armoring. As one example, South Carolina enacted a statute that prohibits the construction of erosion control structures seaward of a setback line.[190] The State's Office of Ocean and Coastal Resource Management declared that "[i]t must be accepted that regardless of attempts to forestall the process, the Atlantic Ocean, as a result of sea level rise and periodic storms, is ultimately going to force those who have built too near the beachfront to retreat."[191]

South Carolina's legislature has declared that the dynamic beach/dune system along its coast is "extremely important" because it "generates approximately two-thirds of [the state's] annual tourism industry revenue" and functions as "a storm barrier," a "habitat for numerous species," and a "natural healthy environment for the citizens" of the state.[192] Recognizing that "development . . . has been [unwisely] sited too close to the system," the legislature deemed it in "both the public and private interests to protect the system from this unwise development."[193] Because armoring provides a "false sense of security,"[194] South Carolina chose to "severely restrict the use of hard erosion control devices to armor the beach/dune system and to encourage the replacement of hard erosion control devices with soft technologies."[195] The state prohibits most erosion control structures seaward of a setback line based on the crest of the dune system.[196]

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[190] S.C. CODE ANN. § 48-39-290(B)(2)(a) (2006).
[191] S.C. CODE ANN. REGS. 30-1(C)(4) (1983 & Supp. 2009).
[192] S.C. CODE ANN. § 48-39-250(1)(a)-(d).
[193] *Id.* § 48-39-250(4).
[194] *Id.* § 48-39-250(5).
[195] *Id.* § 48-39-260(3).
[196] *See id.* §§ 48-39-220(A)-(D), -290(B)(2)(a)-(b) (explaining the prohibition of erosion control structures based on the crest of the dune system).

Since 2000, Maryland's "Department of Natural Resources (DNR) has encouraged policies for responding to a [sea level] rise of two to three feet in this century."[197] In 2007, the governor established the Commission on Climate Change,[198] which released a Climate Action Plan in 2008.[199] The plan provides an "Adaptation and Response Toolbox" designed to "[g]ive state and local governments the right tools to anticipate and plan for sea-level rise and climate change."[200] Additionally, the state's Living Shorelines program presents management options that "allow for natural coastal processes to remain through the strategic placement of plants, stone, sand fill, and other structural and organic materials."[201] Most recently, the Maryland Coastal Management Program launched a CoastSmart Communities Initiative in 2009.[202] In April 2009, it hosted a summit meeting on sea level rise adaptation that drew over 170 participants and fostered discussions on how communities can protect themselves from future risk.[203]

3. State and Local Resilience Efforts: Disaster Management and Hazard Mitigation

Both local competency and coordination among levels of government are required to design disaster resilient communities and to rebuild after disasters strike. Over the past decade, there has been a salutary movement toward the integration of local, state,

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[197] Bacher, *supra* note 26, at 99.

[198] *Maryland Climate Change Initiatives*, MARYLAND CLIMATE CHANGE, http://www.mdclimatechange.us/ (last visited Mar. 15, 2012).

[199] *Id.*

[200] MD. COMM. ON CLIMATE CHANGE ADAPTATION & RESPONSE WORKING GRP., COMPREHENSIVE STRATEGY FOR REDUCING MARYLAND'S VULNERABILITY TO CLIMATE CHANGE 25 (2008), *available at* http://www.dnr.state.md.us/coastsmart/pdfs/comprehensive_strategy.pdf.

[201] *Id.* at 22.

[202] *CSO & OCRM Performance Measures Communication: Workgroup Recommendations*, CSO AND OCRM, app. 5 (Mar. 2011), http://coastalmanagement.noaa.gov/resources/docs/czmwgappend2011.pdf.

[203] *Id.*

and federal actions and resources to address land development in disaster prone regions.[204]

Under the Disaster Mitigation Act of 2000 (DMA),[205] a framework of federal, state, and local cooperation is evident that could be a blueprint for an integrated federalist approach to sea level rise more generally.[206] The DMA articulates national legislative objectives that provide an opportunity to enhance local mitigation planning and implementation and to coordinate land use planning and regulation to promote disaster mitigation.[207] The DMA provides that in order to qualify for federal hazard mitigation grants, state and local governments must "develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government."[208] One key goal of the DMA is to help state and local governments create resilient communities that can better absorb the storm surges and inundation associated with sea level rise and climate change.[209]

The United Nations (U.N.) International Strategy for Disaster Reduction defines "resilience" in this context as "[t]he ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a

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[204] John R. Nolon, *Disaster Mitigation Through Land Use Strategies*, 23 PACE ENVTL. L. REV. 959, 964 (2006).

[205] Disaster Mitigation Act of 2000, Pub. L. No. 106-390, 114 Stat. 1552 (codified as amended at 42 U.S.C. §§ 5121-5207 (2006)).

[206] *See* tit. 42, § 5121 (stating that "[i]t is the intent of the Congress . . . to provide . . . assistance . . . to [s]tate and local governments" with respect to disaster mitigation and relief).

[207] *See id.*

[208] *Id.* § 5165(a).

[209] *See id.* § 5121 (illustrating that the goal of the DMA is to help state and local governments cope with natural disasters, such as those associated with sea level rise and climate change); *see, e.g.*, Zoe Pfahl Johnson, *A Sea Level Rise Response Strategy for the State of Maryland*, MD. DEP'T NATURAL RES. COASTAL MGMT. DIV. (Oct. 2000), http://www.ecy.wa.gov/climatechange/PAWGdocs/ci/071007CIsealevelstrategy.pdf (explaining Maryland's response to sea level rise and climate change).

timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions."[210]

Using their state-delegated land use authority together with state and federal assistance, local governments can create disaster-resilient communities that have increased capacity to adapt to the effects of natural disasters; this would result in less property damage, environmental impact, and loss of life.[211] North Carolina provides an example of how state and local governments can cooperate to achieve coastal resiliency.

Within two years of the adoption of the CZMA, the North Carolina legislature passed the Coastal Area Management Act.[212] This state law provides for state and local coastal planning and implementation, declaring that:

> [The law] establishes a cooperative program of coastal area management between local and [s]tate governments. Local government shall have the initiative for planning. State government shall establish areas of environmental concern. With regard to planning, [s]tate government shall act primarily in a supportive standard-setting and

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[210] *Terminology*, UNITED NATIONS INT'L STRATEGY FOR DISASTER REDUCTION, http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm (last visited Feb. 24, 2012).

[211] The use of the word "resilience" in the context of ecosystems studies has been traced to C.S. Holling, *Resilience and Stability of Ecological Systems*, 4 ANN. REV. ECOLOGICAL SYS. 1 (1973). *See* Richard J.T. Klein et al., *The Resilience of Coastal Megacities to Weather-Related Hazards*, *in* BUILDING SAFER CITIES: THE FUTURE OF DISASTER RISK 101, 111 (Alcira Kriemer et al. eds., 2003); *see also* COOPERATING WITH NATURE: CONFRONTING NATURAL HAZARDS WITH LAND USE PLANNING FOR SUSTAINABLE COMMUNITIES (Raymond J. Burby ed., 1998); DAN HENSTRA ET AL., INST. FOR CATASTROPHIC LOSS REDUCTION, BACKGROUND PAPER ON DISASTER RESILIENT CITIES § 3.0 (2004); PATRICIA JONES KERSHAW, NAT'L RESEARCH COUNCIL, CREATING A DISASTER RESILIENT AMERICA 1 (Nat'l Acads. Press 2005); DENNIS S. MILETI, DISASTERS BY DESIGN: A REASSESSMENT OF NATURAL HAZARDS IN THE UNITED STATES 5 (1999); Ramond J. Burby et al., *Creating Hazard Resilient Communities Through Land Use Planning*, 1 NAT. HAZARDS REV. 99 (2000); David R. Godschalk, *Urban Hazard Mitigation: Creating Resilient Cities*, 4 NAT. HAZARDS REV. 136 (2003).

[212] N.C. GEN. STAT. §§ 113A-100 to -134.9 (2009).

> review capacity, except where local governments do not elect to exercise their initiative.[213]

To inform proper local planning, the state issued design and construction guidelines for local hazard mitigation plans and provided that coastal communities should "outline a post-disaster permitting process that facilitates repairs but remains steadfast to the need to mitigate against future disasters."[214] One way to accomplish this is to create a short-term building moratorium to allow the community time to assess damage and consider mitigation measures.[215]

The Town of Duck is a coastal community located on North Carolina's Outer Banks that has followed the state's suggestions and carried out several of its coastal policies. It has adopted a rebuilding and reconstruction law that creates procedures for assessing storm damage, adopting a short-term moratorium that prevents rebuilding after a disaster, and recalibrating local regulations in response.[216] Duck's local law ensures that rebuilding occurs "in an orderly manner" and with the opportunity to identify "appropriate areas for post-storm change and innovation."[217]

C. Local Land Use Planning and Regulation

The sea level rise component in a local comprehensive plan may recognize a locality's susceptibility to flooding, erosion, sea level rise, or severe storm events. It can describe the consequences of these threats and draw the public's attention to them. A detailed sea level rise plan component can include projected impacts on topography vulnerable to sea level rise, including dunes, tidal wetlands, and groundwater. It could also address shoreline structure issues. Since all local land use regulations must conform to a community's comprehensive plan,[218] a sea level rise

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[213] *Id.* § 113A-101.

[214] N.C. DIV. OF EMERGENCY MGMT., TOOLS & TECHNIQUES: PUTTING A HAZARD MITIGATION PLAN TO WORK 4 (1998), *available at* http://infohouse.p2ric.org/ref/14/13613.pdf.

[215] *Id.*

[216] DUCK, N.C., CODE § 152.03 (2008).

[217] *Id.* §§ 152.03-.04(b)(1).

[218] *See* N.C. DIV. OF EMERGENCY MGMT., *supra* note 214, at 1.

component can assist communities in establishing regulations for sea level rise adaptation.

A chapter titled "Environmental Element" was added in 2004 to the comprehensive plan of the City of Bainbridge Island, Washington, that focuses on sea level rise.[219] Flooding and erosion are principal concerns, and the city's objectives are to minimize, reduce, or eliminate their impacts.[220] This code component mandates no net loss of the city's aquatic resources, maintenance of its vegetated buffers between proposed development and aquatic resources, and the preservation of stream courses and riparian habitat.[221] It calls for the transfer and purchase of development rights.[222] To mitigate damage due to frequent floods, the plan limits future development and alteration "of natural floodplains, stream channels, and natural protective barriers;" encourages revision of the flood insurance rate map to reflect the natural migration of frequently flooded areas; and emphasizes the implementation of nonstructural protective methods such as setbacks and natural vegetation.[223]

The Town of East Hampton, New York, has been planning and regulating for sea level rise for years and makes specific reference to sea level rise in its comprehensive plan. Adopting its Local Waterfront Revitalization Program[224] as the coastal management component of its comprehensive plan, the Town states:

> Future planning efforts should examine the likely effects of global warming, including increasing sea-level rise and storm and hurricane activity on the [t]own's coastline.

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[219] *See* BAINBRIDGE ISLAND, WASH., COMPREHENSIVE PLAN: ENVIRONMENTAL ELEMENT 1-24 (2004), http://www.ci.bainbridge-isl.wa.us/documents/pln/compplan/compplan2004_environmental_2008_cpa.pdf.

[220] *Id*. at 8-9.

[221] *Id.* at 5-8.

[222] *Id*. at 20.

[223] *Id.* at 9.

[224] EAST HAMPTON, N.Y., LOCAL WATERFRONT REVITALIZATION PROGRAM (1999), *available at* http://www.dos.ny.gov/communitieswaterfronts/WFRevitalization/LWRP/Town%20of%20East%20Hampton/default/PDF/East%20Hampton%20Final%20LWRP.pdf.

> Beginning to plan for these effects, assessing potential damage to public resources and infrastructure, and evaluating methods of protection and associated costs[] are vital for future coastal management.[225]

"East Hampton has also adopted coastal setbacks, no-build zones in high hazard floodplains, . . . [and a] coastal erosion overlay zone [that] regulates the construction and alteration of shoreline protective structures."[226]

Malibu, California, adopted a Local Coastal Program Local Implementation Plan in September 2002; it bans the use of shoreline protection structures and devices to protect new construction projects.[227] The plan requires that prospective sea level rise be considered, that proper setbacks be established, and that buildings be elevated accordingly.[228] Deed restrictions are required to ensure compliance by the developer and subsequent owners.[229] The plan notes that these strategies will "eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100-year economic life of the structure."[230]

The importance of intermunicipal coordination of plans like those in Malibu, East Hampton, and Bainbridge Island is accentuated by climate change. In the San Francisco Bay Area, for example, there are "110 towns, cities and counties and scores of governmental agencies [with] jurisdiction over . . . land" development and conservation.[231] No individual municipality has the staff resources to conduct the type of planning this region needs and to interpret the effect actions in each municipality might

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[225] *Id.* at v-19.

[226] *See* Bacher, *supra* note 26, at 104.

[227] MALIBU, CAL., LOCAL COASTAL PROGRAM: LOCAL IMPLEMENTATION PLAN 176 (2002), *available at* http://www.coastal.ca.gov/ventura/malibu-lip-final.pdf.

[228] *Id.* at 178.

[229] *Id.* at 185.

[230] *Id.* at 178.

[231] *See* John Upton, *The Bay Citizen: Bay Area Climate Change Plans Lack Regional Cooperation*, N.Y. TIMES (Feb. 17, 2012), http://www.nytimes.com/2012/02/17/science/earth/bay-area-climate-change-plans-lack-regional-cooperation.html?_r=1&pagewanted=all.

have on its neighbors. The need for coordinated intergovernmental and intermunicipal planning is yet to be met, with a variety of agencies vying for control of the process.[232] Again, effective action by local and state governments can be furthered by resources made available by the federal government under a revitalized CZMA.

V. CONCLUSION: UNTYING THE JUDICIAL TAKINGS KNOT BY MODERNIZING THE CZMA

Certain utterances of the Supreme Court of the United States are fraught with ambiguity and threaten to render state and local coastal planning dysfunctional in the absence of clearer direction. Justice Scalia, writing for a plurality in *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection* (*STBR*),[233] noted that "[a] constitutional provision that forbids the uncompensated taking of property is quite simply insusceptible of enforcement by federal courts unless they have the power to decide what property rights exist under state law."[234] The Court's *Lucas v. South Carolina Coastal Council*[235] decision, also written by Scalia, held that a regulation that takes all economic use of a petitioner's property is a taking unless, under the "background principles of the [s]tate's law,"[236] the use that the regulation prohibits is "not part of his title to begin with."[237] There, David Lucas was prevented from building homes on two lots that he owned in the Isle of Palms, a South Carolina barrier island community, because of a setback provision adopted by the South

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[232] *See id.* ("In the Bay Area, where climate change is expected to cause flooding, shoreline erosion, heat waves, water shortages, and a spread of exotic infectious diseases, it seems as if people are drowning in plans[,] but with little regional coordination. . . . No such comprehensive plan has been prepared for the Bay Area, where some 110 towns, cities and counties and scores of government agencies have jurisdiction over their own land, or over issues they regulate and govern. Instead, planning for climate change is being undertaken in an ad hoc manner by a hodge-podge of municipalities and agencies.").

[233] Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592 (2010).

[234] *Id.* at 2609 (plurality opinion).

[235] Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992).

[236] *Id.* at 1029.

[237] *Id*. at 1027.

Carolina Coastal Council that created a limited no-build zone covering the entirety of his lots.[238]

In *Lucas*, Scalia referred to the Court's "traditional resort to 'existing rules or understandings that stem from an independent source such as state law' to define the range of interests that qualify for protection as 'property' under the Fifth and Fourteenth Amendments."[239] He further noted that although "[i]t seems unlikely that common-law principles would have prevented the erection of any habitable or productive improvements on [Lucas]'s land[,] . . . [t]he question . . . is one of state law to be dealt with on remand."[240] The *Lucas* decision also accommodates the notion that change in common law principles occurs. "The fact that a particular use has long been engaged in by similarly situated owners ordinarily imports a lack of any common-law prohibition (though changed circumstances or new knowledge may make what was previously permissible no longer so)."[241]

The message from the federal judiciary is thoroughly ambivalent. The Court communicates that if state and local governments prohibit development in areas vulnerable to sea level rise, they do so at their own peril and possible great expense. They learn further from the Court that restrictions on development that take all value cannot be newly legislated, but that "changed circumstances or new knowledge" may save these restrictions from being takings.[242] Meanwhile, "a [s]tate's highest court is unquestionably the 'ultimate exposito[r] of state law,' "[243] yet according to Scalia's plurality in *STBR*, a state court interpretation of common law can be declared a judicial taking by federal courts requiring compensation at the expense of the taxpayers.[244]

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[238] *Id.* at 1008-09.

[239] *Id.* at 1030 (quoting Bd. of Regents of State Colls. v. Roth, 408 U.S. 564, 577 (1972)).

[240] *Id.* at 1031.

[241] *Lucas*, 505 U.S. at 1031 (citing RESTATEMENT (SECOND) OF TORTS § 827 (1965)).

[242] *Id.*

[243] Riley v. Kennedy, 553 U.S. 406, 425 (2008) (second alteration in original) (citing Mullaney v. Wilbur, 421 U.S. 684, 691 (1975)).

[244] Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S. Ct. 2592, 2609 (2010) (plurality opinion).

This judicial knot is likely to tie up state and local action for years to come without proper intervention. A revitalized and reinvigorated CZMA could provide that force. The *Lucas* decision is twenty years old;[245] it, like the CZMA, has not been informed by all that we have learned about climate change and sea level rise in the twenty years since the signing of the Rio Accords. More relevantly, perhaps, the progress made by state and local governments in developing resilient coastal communities has not been incorporated into federal policy.

Using the principles of framework legislation and reflexive law, and with an eye toward enabling state and local problem solving as sea levels rise, Congress should revisit the CZMA and revise it to send a clear message to coastal states and communities that their efforts will be supported and sustained by federal action. Resources can be provided to restore public access and remove doomed structures; best practices can be identified and technical assistance can be provided; inundation and storm surge maps can be provided; methods of informing private sector investment-backed expectations in vulnerable areas can be developed; sample regulations can be promulgated; and sea level rise components of state and local land use plans can be disseminated.

The consequences of climate change and the challenges that states and localities confront are too serious to confound these entities' thinking and confuse their responses with conflicting and dated messages from our nation's highest authorities. The Court's ambiguity is unfortunate, and the failure of Congress to update its seminal legislation is baffling. This pattern is reflected in climate change policy generally. The absence of helpful national leadership adversely affects local and state action regarding energy conservation,[246] preservation of the sequestering environment,[247] and reduction of emissions from buildings and vehicles.[248] Local governments react to perturbations on the land and at the water's edge by reforming and updating their laws, policies, and programs in times of crisis. The Court and Congress should do the same.

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[245] *Lucas*, 505 U.S. at 1003.
[246] *See generally* Nolon, *Land Use for Energy Conservation*, *supra* note 1.
[247] *See generally* Nolon, *Managing Climate Change*, *supra* note 1.
[248] *See generally* Nolon, *Land Use Stabilization*, *supra* note 1.