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**Climate Adaptation and the Fifth Amendment of
the U.S. Constitution: A Regulatory Takings
Analysis of Adaptation Strategies in Coastal
Development with Application to Connecticut's
Coastal Management Regime**

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Climate Adaptation and the Fifth Amendment of the U.S. Constitution: A Regulatory Takings Analysis of Adaptation Strategies in Coastal Development with Application to Connecticut's Coastal Management Regime

Chad J. McGuire¹ and Jason J. Hill²

Abstract: As climate change impacts are realized at the governance level, states and local governments are moving towards adaptation strategies that include increasing restrictions on how land is used in coastal zones. The purpose of this article is to review state regulatory strategies that are attempting to adapt to climate change in light of limits placed on those strategies by the Fifth Amendment to the United States Constitution: the prohibition against the taking of private property by government action without a public purpose and just compensation. This article highlights the importance in identifying the roles governments can take beyond the role of "regulator" as a means of mitigating regulatory takings challenges. The analysis presented is then applied generally to Connecticut's coastal management regime.

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I. Introduction

As governing bodies internalize the impacts of climate change, states and local governments are developing adaptation strategies that expand restrictions on how land is used in coastal zones. Reputable climate change science indicates sea level rise will impact coastal environments in dynamic and non-linear ways,³ suggesting the past cannot be used as an accurate predictor of the future.

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³ See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: SYNTHESIS REPORT 23 (2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf; U.S. GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES 18 (2009), available at <http://www.globalchange.gov/what-we-do/assessment/previous-assessments/global-climate-change-impacts-in-the-us-2009>.

Understanding this, governance structures need to implement strategies today that adequately speak to the reality of sea level rise, including the associated risks for coastal communities (increased frequency and intensity of storms, etc.).⁴

As governments adapt policy directions to a changing coastal environment, they must take account of existing policy and legal frameworks. One framework is the federal constitutional prohibition on the public taking of private land without compensation.⁵ Because most government actions aimed at dealing with sea level rise implicate local land use decisions, the issue of regulatory takings – the “taking” of private property by government indirectly through regulation – is an important planning consideration. Regulatory takings considerations are “important” not just because of the potential financial costs to a government when a regulatory taking is found, but also because of the relational problems that develop between public and private interests when new regulation of land alters preexisting expectations. It is important for governments to have both a clear sense of their options when approaching the regulation of coastal lands in response to impending sea level rise and also a clear sense of how these options will impact stakeholders. Being able to link the best options to the local conditions, including mitigating impacts of land use planning on private landowner expectations, should be a priority for government planning in this area.

This article takes a slightly different approach to the regulatory takings question by focusing more on the *role of government* as a way of deciphering the impact government planning has on regulatory takings. Scholarly articles have already discussed regulatory takings cases in some detail,⁶ including some that have advanced interesting legal theories about how the role of government might impact a regulatory takings claim.⁷ This article reorganizes and advances these concepts in a more comprehensive and directed framework, highlighting how the role government adopts while developing its policy direction can have significant impact on the likelihood of a regulatory taking claim being made, or if such a claim is made, the likelihood of its success in a judicial setting. By identifying and focusing on the role of government at the beginning of a policy direction, this article also provides a basic framework for public land use planners to use in proactively developing policies addressing sea level rise induced by climate change while staying outside the regulatory takings framework, at least when the goal is to avoid a takings claim.

To meet the above-stated goals, this article is broken down into several main sections. First, an overview of the science, policy, and legal aspects of climate change is provided. Second, selected adaptation strategies are identified to place the regulatory takings analysis in greater context. Third, the current state of regulation and development in Connecticut is summarized to provide the framework for the subsequent regulatory takings analysis that focuses on Connecticut as a case study. Fourth, a regulatory takings analysis is provided. This analysis begins with a quick overview of takings jurisprudential law, analyzes how the different ‘roles’ of government can impact a regulatory takings analysis, and then applies this analysis to the legal and physical conditions currently found in Connecticut. The article concludes with some recommendations reinforcing the main points made about public policy development in coastal areas with an eye towards avoiding regulatory takings claims and, when unavoidable, successfully defending such claims.

⁴ *Id.*

⁵ U.S. CONST. amend. V.

⁶ See generally J. Peter Byrne, *Rising Seas and Common-Law Baselines: A Comment on Regulatory Takings Discourse Concerning Climate Change*, 11 VT. J. ENVTL. L. 625 (2010); Kenneth Miller, *Penn Central for Tomorrow: Making Regulatory Takings Predictable*, 39 ENVTL. L. REP. 10,457 (2009).

⁷ See generally Joseph L. Sax, *Some Unorthodox Thoughts About Rising Sea Levels, Beach Erosion, and Property Rights*, 11 VT. J. ENVTL. L. 641 (2010); 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 (1998).

II. Overview of Climate Change Science, Policy Responses, and Legal Issues

A. Science of Climate Change

Scientific consensus has been growing regarding the existence and role climate change plays in sea level rise.⁸ Global average sea level rise over the past 100 years has been calculated to be approximately eight inches.⁹ Meanwhile, the *rate* of sea level rise has been increasing, doubling over the last 15 years in comparison to the rate observed over the past century.¹⁰ Under certain worst-case scenarios, melting of major ice sheets would significantly impact sea level: beginning with a 20-foot average rise from the melting of the Greenland or West Antarctica ice sheets to an approximate 200-foot average rise from the melting of the East Antarctica sheet.¹¹ More locally, coastal areas of the northeastern United States can expect sea level increases of between 2 to 5 inches by the 2020s, 7 to 12 inches by the 2050s, and 12 to 23 inches by the 2080s.¹² Sea level is rising and the rate of sea level rise is increasing. Even those of us with a basic comprehension of mathematics principles knows that as a rate of change increases there is generally less time available to proactively plan for a response to that change.¹³

B. Policy Responses to Climate Change

In general, three types of policy responses are discussed when dealing with the question of climate change: prevention, mitigation, and adaptation. This paper focuses squarely on adaptation strategies associated with climate change, specifically adaptation strategies dealing with coastal land use planning under the assumption of increasing and dynamic sea level rise. It is important to state these assumptions explicitly because they affect the *manner* by which policy planning in coastal areas is conducted. For example, if sea level rise was occurring at a steady rate, then policymakers could rely on straightforward development tools, such as minimum setback requirements derived from annual erosion rates – say a 30-year setback based on historic rates of erosion. However, in a world where the *rate* of sea level rise is increasing, minimum setback calculations may be inadequate to protect future development for the entire 30 years. Policy planners have to make adjustments for such contingencies in their planning efforts, as the role of adaptation planning is made more complicated because the dynamics of sea level rise is complicated.

⁸ Intergovernmental Panel On Climate Change, *supra* note 3.

⁹ U.S. Global Change Research Program, *supra* note 3.

¹⁰ *Id.*

¹¹ *Id.* at 114.

¹² See NEW YORK CITY PANEL ON CLIMATE CHANGE, CLIMATE RISK INFORMATION 17-18 (2009), available at http://www.nyc.gov/html/om/pdf/2009/NPCC_CRI.pdf (There are no direct studies for the State of Connecticut but this report covers the New York City region, which shares much of the same coastal impact areas as Connecticut).

¹³ An often-used example of reaction time to exponential (non-linear) growth is the following lily pad example: An invasive species of lily pad is growing in a pond. The lily pad doubles every day. In 30 days the lily pad will completely cover the pond. Generally no one takes the lily pad problem seriously until the pad covers half the pond. On what day does it cover half the pond? Answer: the 29th day (indicating one only has 1 day to react to the problem). See DAVID B. FIRESTONE & FRANK C. REED, ENVIRONMENTAL LAW FOR NON-LAWYERS 7-8 (3d ed. 2004).

James Titus and colleagues have provided what is probably the most comprehensive review of public policy adaptation strategies to sea level rise.¹⁴ Most of the adaptation strategies identified by the literature focus on government developing policies to manage interactions between natural phenomena – such as shore erosion – and human interactions with these phenomena.¹⁵ These “shoreline management techniques” are usually divided into categories that include hard/structural stabilization methods; soft/non-structural stabilization methods; hybrid forms of stabilization techniques; and general policy/planning techniques. Regulatory tools include zoning and other “police powers” the government has to control land use. Examples include the establishment of setbacks and more comprehensive zoning, such as erosion overlay districts.

All of the adaptation strategies identified above highlight the regulatory role and how it defines government perception of response options. When we think about an unexpected element of land use planning like sea level rise, most government responses highlight the need to drastically alter the expectations of interested parties (mostly private landowners) through proscriptive changes to existing zoning regulations. One of the major goals of this article (as discussed in more detail in Section V below) is to encourage government to think about the roles available to it beyond regulator when planning adaptation strategies. In fact, it is suggested that stepping outside the traditional government role of regulator can yield significant benefits for the parties involved: the government in terms of limiting regulatory takings claims, and the public by ensuring policies implemented to adapt to sea level rise are equitable by considering the interests of all parties involved. A short summary of the legal issues arising in coastal development follows to provide background for the remainder of the article.

C. *Legal Issues Related to Coastal Development*

Coastal land use planning is, fundamentally, a relationship between private and public interests; the private landowner holds certain rights in their property that are sometimes limited by the power of the state and local government to enact reasonable restrictions on those interests for the benefit of the public-at-large. Land use planning is primarily a state and local concern, reserved to the states by the Tenth Amendment to the U.S. Constitution,¹⁶ and has been upheld as a constitutionally allowed prohibition on the private use of land so long as the exercise of that power is deemed “reasonable.”¹⁷

The foundation for local government land use authority is the state’s “police power” – the authority of the state to make reasonable regulations that control for the health, safety, and welfare of the citizenry.¹⁸ However, the upper extent to which land can be regulated by government without running afoul of the law is a question that is in flux and thus gives rise to the regulatory takings jurisprudence seen today. At the heart of this flux is a philosophical dichotomy regarding the relationship between government and private property rights.

Regulatory takings jurisprudence is, in many respects, the natural evolution of this philosophical dichotomy that underpins real property rights; whether property rights are “natural” and thus preexist

¹⁴ James G. Titus et al, *State and Local Governments Plan for Development of Most Land Vulnerable to Rising Sea Level Along the U.S. Atlantic Coast*, 4 ENVTL. RESEARCH LETTERS 1-7 (2009), available at http://iopscience.iop.org/1748-9326/4/4/044008/pdf/1748-9326_4_4_044008.pdf; See also James G. Titus, *supra* note 7.

¹⁵ *Id.*

¹⁶ U.S. CONST., amend. X.

¹⁷ See *Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926) (upholding reasonable zoning regulation powers that placed limitations on private property for the benefit of the public at large). What is deemed “reasonable” extensions of the state’s power to regulate private property in the context of regulatory takings is explained in further detail in the *Takings Analysis and Adaptation Strategies*, Part V of this article below.

¹⁸ *Id.*

political institutions,¹⁹ or whether property rights are defined by and through social institutions like government.²⁰ If one follows the natural rights argument, then real property is sacrosanct in the sense that changes in government and social policy over time cannot impact previous expectations of property rights founded in the property law of the particular jurisdiction. Contrarily, if real property rights flow from social institutions instead of preexisting these institutions, then property rights are subject to reshaping and refinement by these social institutions over time.

A proxy for understanding this ideological tug-of-war between private property rights and government regulation of those rights can be seen in the Fifth and Tenth Amendments to the U.S. Constitution. The main limit placed on the Tenth Amendment's reservation of police power to state governments derives from the Fifth Amendment's takings clause.²¹ As mentioned earlier, a valid exercise of police powers provides the foundation for local government to place limits on how private property might be put to use.²² Changes to the way in which governments have chosen to regulate private property over time support the concept that real property rights flow from social institutions rather than being a pre-political right.²³ The Fifth Amendment provides the counterbalance, suggesting there are irreducible real property rights that cannot be subjected to certain forms of government intervention without meeting eminent domain conditions, supporting the concept that certain "natural" and inalienable rights exist within real property.²⁴

Governments are often caught somewhere in the middle of this ideological spectrum, often trying to determine how far their Tenth Amendment right to regulate real property goes without stepping over a boundary where a Fifth Amendment line is drawn and a taking is found to exist. The ultimate arbiter of where an unintended government act leads to a taking is the judicial branch of government. Judicial cases have helped to frame some methods for aiding in the determination of where that line between the Tenth and Fifth Amendment is drawn. However, these rules are sometimes unclear and applied unevenly, possibly because the justices are often looking at the issue through different lenses depending on how they view the foundation of private property rights.²⁵ Those justices who believe property rights predate government are likely to lean more towards Fifth Amendment protections; justices believing property rights flow from government are – all things being equal – more likely to lean towards Tenth Amendment powers of the state to define property rights.

A historical summary of regulatory takings jurisprudence will be provided in Section V below as this article develops its discussion on the importance of focusing on the role government takes in approaching coastal land use adaptation strategies. However, it is important to point out now that

¹⁹ See WILLIAM BLACKSTONE, COMMENTARIES *1; James W. Ely, Jr., *Economic Liberties and the Original Meaning of the Constitution*, 45 SAN DIEGO L. REV. 673, 703 (2008).

²⁰ See JEREMY BENTHAM, THEORY OF LEGISLATION: PRINCIPLES OF THE CIVIL CODE 137–39 (Hildreth ed. 1931) (“[T]here is no such thing as natural property[;] ... it is entirely the work of law... Property and law are born together, and die together. Before laws were made there was no property; take away laws, and property ceases.” *Id.* at 111-13); ERIC FREYFOGLE, ON PRIVATE PROPERTY XV (2007).

²¹ U.S. CONST., amend. V.

²² See *generally* *Euclid*, 272 U.S. 365 (1926) (holding that a city zoning ordinance was constitutional when it legitimately exercised police powers asserted for maintaining public welfare).

²³ *Id.*

²⁴ Early in our history, there was a strong differentiation between a valid police power to regulate and a Fifth Amendment prohibition against the taking of private property without a public purpose and just compensation. See *The Legal Tender Cases*, 79 U.S. (12 Wall) 457, 551 (1870) (“[The Takings Clause] has always been understood as referring only to a direct appropriation, and not to consequential injuries resulting from the exercise of lawful power.”). The “lawful power” that the Court defers to is the police power of the state to regulate for health and for safety. See also *Mugler v. Kansas*, 123 U.S. 623, 661 (1887).

²⁵ See J. Peter Byrne, *Stop the Stop the Beach Plurality!*, 39 ECOLOGY L.Q. 619 (2011).

regulatory takings jurisprudence has developed very much in-line with the philosophical dichotomy between property rights mentioned above. Indeed, “regulatory takings” as a distinct category of takings derived from the idea that the otherwise lawful exercise of Tenth Amendment powers of state government to regulate can go too far into fundamental property rights of private landowners as to exact a “taking” of that private property, even where the government has no intention of seeking ownership of the private property in question.²⁶ Legal commentators have discussed the development of case law over the recent decades as a reflection of this underlying philosophical difference, noting how decisions often reflect a preference for private property rights over government regulation and vice-versa.²⁷

A recent example of this battle between private property right protection under the Fifth Amendment and government capacity to define property rights (and thus limitations on those rights) under the Tenth Amendment is the U.S. Supreme Court Decision in *Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection*.²⁸ This case dealt with a number of legal questions regarding a regulation that ultimately altered private property right expectations. Some of those legal questions – specifically the ones dealing with judicial takings – are not important for the points being made here. Rather, our focus is on how the Court framed the government’s capacity to regulate in a manner that impacts private property rights, specifically how those private property rights are categorized during judicial review.

In *Stop the Beach Renourishment*, the U.S. Supreme Court reviewed a Florida State Supreme Court analysis to determine, to what extent, if any, the state court deviated in its analysis of settled property law in the state.²⁹ According to the U.S. Supreme Court plurality opinion, a taking can be found where a judicial body misapplies historical state property law concepts in a takings analysis. In this case, the U.S. Supreme Court found no misapplication of state property law because: (1) the Florida statute at issue allowed for Florida to obtain ownership rights over beach nourishment projects to the extent of the land mass added by the public project; (2) this additional land was considered an avulsion under Florida property law; (3) Florida property allows for avulsions to accrue to the state and not the private property owner; and (4) the Florida Supreme Court correctly applied Florida property law when it held the state was entitled to the property.³⁰

The focus of the U.S. Supreme Court analysis here is on tracking the state court to ensure that court relies on established principles of state property law. If the state is determined to make a decision outside of previously defined state property rights, then the U.S. Supreme Court is suggesting a taking of private property in violation of the Fifth Amendment will be found. Placing this precedence into a framework for coastal adaptation strategies, it seems that any strategy that deviates from established principles of property law within that particular state has a stronger chance of being labeled a taking of private property.

To summarize, government has the capacity to regulate private property, and this capacity is best defined within the Tenth Amendment police powers reserved to the states in the U.S. Constitution. How far governments can go in regulating private property is a question without a definitive answer. The Fifth Amendment places an upper limit suggesting there is a “line” that exists where government goes too far in regulating private land; when government crosses this line, an unconstitutional taking

²⁶ See *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393 (1922). Justice Holmes wrote: “[t]he general rule ... is that while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.” *Id.* at 415.

²⁷ See BLACKSTONE, *supra* note 19.

²⁸ 130 S. Ct. 2592 (2010).

²⁹ *Id.* at 2596.

³⁰ *Id.*

has occurred. Foundationally, the line between acceptable government regulation and regulation that goes too far depends in part on how private property is perceived as a concept. Where private property exists as a right outside of society, the expectation is that less room would be given to government to impede on traditional notions of private property rights. On the contrary, where private property is seen as an extension of social institutions, more governmental freedom to define property rights as societal norms and conditions change is expected. While the genesis of regulatory takings jurisprudence is summarized in Section V below, recent U.S. Supreme Court decisions – like *Stop the Beach Renourishment* – have provided some evidence that Fifth Amendment rights will be given precedence over evolving ideas about property rights.

When thinking about adaptation policies to climate change, the more conservative direction taken by the Court in *Stop the Beach Renourishment* can be troubling for coastal planners. If actions today must always accord to historical property rights as the U.S. Supreme Court seems to suggest, then government is limited in its capacity to develop property right limitations that respond to rising seas in ways that violate those traditional property right expectations – unless government is willing to pay for these protections. The solution suggested in this article is that government, in some ways, can sidestep this debate by viewing its role outside that of a traditional regulator and considering options for developing adaptation policies that are not inherently regulatory in nature. By doing this, government can help itself by expanding the options available for adapting to climate change without automatically drawing itself into a regulatory takings claim. The traditional legal analysis that flows from a regulatory setting need not define policy directions chosen by government bodies to deal with the realities of climate change. Rather, governments should look to rights established through common and state property law to aid them in developing non-regulatory frameworks. Prior to discussing these non-regulatory frameworks in detail, a summary of government's rights and obligations are highlighted so these concepts can be carried forward to better understand the non-regulatory framework discussion.

As mentioned, government certainly has the power to regulate private property, but that power is limited. Beyond regulation, government also has certain *rights* and *obligations* that are unique to coastal areas. In terms of *rights*, government is the owner of submerged land.³¹ State governments can assert proprietary rights in submerged land against the ownership rights of a private landowner who abuts the submerged land.³² In this setting, both parties have “equal” and sometimes competing rights as landowners. Notice the distinction here between government acting as landowner of property and government acting as a regulator. In the landowner setting, government is on par with the private landowner (landowner and landowner), while in the regulator setting, the government sits above the landowner enacting and enforcing proscriptions (regulator and regulated). Usually, in both cases, the disputes between private landowner and the government are resolved by judicial review.³³ However, when acting as a property owner, the government cannot be said to be regulating; therefore, the aggrieved private landowner (and the courts) must look to resolutions for the grievance outside of a regulatory framework.

³¹ See Submerged Lands Act, 43 U.S.C. §1301.

³² Landowners abutting saltwater bodies are often referred to as “littoral” landowners, while those abutting freshwater bodies are often referred to as “riparian” landowners. Use of either term is meant to indicate a private landowner whose property abuts water.

³³ As is shown in greater detail later in this article, regulatory takings claims are often brought by an affected landowner after the government has acted in its authority to regulate when the regulation changes preexisting ideas – right or wrong – held by the private landowner in relation to what they believed they could do with their property. Alternately, if government is acting as landowner and the dispute is one of property rights and obligation *as between* landowners, then the dispute is resolved through a judicial setting.

In terms of *obligations*, government is the trustee of the public's rights in the coastal zone and, as such, it has trustee obligations towards ensuring those public rights are maintained and protected.³⁴ The public trust doctrine, a foundational "background principle of law" as contemplated in the *Lucas* decision,³⁵ emanates from Roman law and has been carried forward through England to the United States through common law tradition.³⁶ Like other background principles of property law – including custom and nuisance – the doctrine does not alter existing property rights of private landowners but rather clarifies exactly what property rights are actually owned by the private landowner.³⁷ The public trust doctrine may also be read as one of those historical antecedents of property law that exists in most states and identified by the U.S. Supreme Court as a means to determine the expectations of private property landowners under a takings analysis.³⁸ Traditional rights established under the doctrine have included fishing, fowling, and navigation,³⁹ however, states have expanded the kinds of rights that attach to the public trust.⁴⁰ Consider the potential difference in analyzing a government action that has been defined in terms of protecting an established public trust right rather than a government action that is based upon regulating in the general public's interest. For example, in a recent case interpreting the impact of Texas Open Beach Act,⁴¹ the Texas Supreme Court upheld the rights of the public that run with the submerged lands based on background principles of the state's property law.⁴² Where those rights are clearly attached to historical public trust rights, then they carry forward over time. So, if a shoreline recedes gradually throughout time due to sea level rise, then the defined public trust rights – and commensurate obligations – also move landward with the rising seas. This means a state can enforce public trust obligations on land that was heretofore dry private land

³⁴ *Illinois Cent. R.R. v. Illinois*, 146 U.S. 387, 452 (1892) (states hold title to submerged lands "in trust for the people of the state, that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties."). Protection of public rights can be expansive beyond the immediate submerged lands. For example, government as trustee can enforce acts that are tantamount to a public nuisance because they inhibit the ability of the public to access and use the ocean as a public resource. One can envision a situation where an established public right to access the nearshore beach is frustrated because of rising sea levels. If the established right of access to the shoreline impacts heretofore uninhibited private property rights, government can enforce the established right of access as trustee of the public right; no legislation or other regulation is required to enforce the public right of access.

³⁵ See Meg Caldwell & Craig Holt Segall, *No Day at the Beach: Sea Level Rise, Ecosystem Loss, and Public Access Along the California Coast*, 34 *ECOLOGY L.Q.* 533, 552–55 (2007).

³⁶ *Illinois Central Railroad*, 146 U.S. 387 (1892).

³⁷ See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1029 (1992).

³⁸ *Id.*; *Stop the Beach Renourishment*, 130 S.Ct. 2592 (2010). *Lucas* held that a federal court could review state property law when that property law is forming the basis of a background principle of law – for example, public nuisance – to prevent a regulatory takings challenge. *Lucas*, 505 U.S. at 1031-32. *Stop the Beach Renourishment* claims federal courts have the right to review state property law changes suggesting deviations from historical principles of common law rights would encroach on private property rights. *Stop the Beach Renourishment*, 130 S. Ct. at 2610. Traditional public trust doctrine rights that exist in coastal states would clearly meet either the *Lucas* or *Stop the Beach Renourishment* definitions of historical property law rights.

³⁹ Caldwell, *supra* note 35, at 552.

⁴⁰ See generally Robin Kundis Craig, *A Comparative Guide to the Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 *ECOLOGY L.Q.* 53 (2010) (comparing the western states' public trust doctrines); Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrines: Classification of States, Property Rights, and State Summaries*, 16 *PENN ST. ENVTL. L. REV.* 1 (2007) (comparing the eastern states' public trust doctrines).

⁴¹ TEX. NAT. RES. CODE ANN. §§ 61.001 – 61.254.

⁴² *Severance v. Patterson*, 2012 Tex. LEXIS 260 (2012).

without enacting any statutes or taking any regulatory position – the public trust rights simply move with the tide.⁴³

The point of identifying the public trust obligations here is to show how those obligations can form yet another important relationship – a non-regulatory relationship – between the state as trustee of a public resource and the private landowner. Leaving the details for later, it is enough to acknowledge the government's public trust responsibilities as a background principle of state property law. Thus, enforcement of public trust responsibilities by the state generally cannot form the basis of a regulatory takings claim because the government is enforcing responsibilities that derive from background principles of property law.

Conceptually, the state, when acting as trustee, should be thought of as a third party intervening in a dispute between two parties with property rights. The two parties would be the private landowner and the general public who have public trust property rights (*jus publicum* rights) within the coastal zone. An example might include a private landowner who is attempting to armor her property against the rising sea by building a sea wall. Assuming the sea wall will cause greater erosion to the adjoining lands around the home, including sandy public beach areas, the public may have a vested right in the public beach resource, and so the state is compelled to act or "step-in" as trustee to protect the public interests at stake. Whatever the government might choose to do as an intervention in their trustee capacity, the government is not regulating in the traditional sense. Even where the government might intervene by using its regulatory power, the *basis* of the intervention is the public trust doctrine, which is a background principle of property law.

The struggle between the Fifth and Tenth Amendments to the U.S. Constitution creates uncertainty about judicial declarations of government regulation in the coastal zone, where ultimate decisions about regulatory takings are made. Those who desire to understand these interactions should begin by understanding the role government adopts when it acts to alter coastal land use expectations. The "hat" government wears – whether as regulator, property owner, or trustee – makes a difference when determining the legal issues present. The details of these interactions have been introduced now, and will be more fully explored later. Prior to delving into the takings analysis in greater detail, this article will quickly review general adaptation strategies that have been used in managing sea level rise, and then overview the approach Connecticut takes to development and regulation in its coastal region. The adaptation strategy summary follows.

⁴³ It is important to note that the *Severance* case distinguished the rights to the submerged land for the public, and any public rights to adjacent dry land – including express or implied easements of access – that might be sought in association with the submerged land rights. In *Severance*, the Texas Supreme Court was dealing with a consideration of the impact a storm event (avulsion) might have on raising the tides significantly inland in a discrete period of time. While the newly submerged land is clearly public land, the more difficult question entertained by the Court had to do with the rights to the immediately adjacent uplands bordering the submerged land, specifically whether the public had an *automatic* right of easement to use these uplands for access to the new seashore. The Court indicated the easement for access does not automatically "roll" with the submerged land – particularly in avulsive events – but rather must be proven using background principles of property law to justify the existence of the easement in the new upland area. One of the main difficulties in this case surrounds the question of what property rights inure to the private property owner when they purchase coastal property. While this question may be somewhat unsettled for parts or the whole of Texas shoreline, there are a variety of states who have a longstanding tradition of limiting the rights of littoral property owners when it comes to their expectations with sea level rise. Oregon has long held that private property owners along the beach have no property interests in upland between the high water mark and vegetation line because of the longstanding common law doctrine of custom recognized by the state. *Stevens v. City of Cannon Beach*, 854 P.2d 449, 457 (1993).

III. Common Adaptation Strategies

The purpose of this section is to review some of the common strategies used by governments to adapt to sea level rise. The goal is to provide insights on how common adaptation strategies fit within the regulatory takings analysis identified in this article. This section is divided into two major categories of adaptation strategies based on the approach taken to rising seas. Each approach is analyzed focusing on the governmental role being taken in implementing the strategy: whether government is acting primarily through its regulatory role or outside of it.

Coastal communities are attempting to proactively plan for the development of land that is most vulnerable to sea level rise and this is certainly true of governments along the U.S. Atlantic coast.⁴⁴ The main types of regulatory tools being employed by local governments focus on proscriptions enacted through their power to regulate land use development.⁴⁵ For this discussion, the focus of regulatory adaptation strategies will be based on whether the policy is geared primarily towards either *protecting* the shore or *retreating* from the shore.⁴⁶

A. *Protecting the Shore*

There are a variety of tools that government can utilize to protect the shoreline from rising seas. These include *shoreline armoring* which “involves the use of structures to keep the shoreline in a fixed position or to prevent flooding when water levels are higher than the land.”⁴⁷ Development of seawalls, bulkheads, retaining structures, and revetments are all methods for fixing the shoreline.⁴⁸ Dikes, dunes, tide gates, and storm surge barriers are methods used to prevent flooding when the water levels are higher than the land.⁴⁹ *Elevating land surfaces* is another way of protecting the shore; beach fill, dune creation/protection, land filling, structure elevation, and dredging are used to prevent inundation.⁵⁰ There are also *hybrid approaches* to protecting the shore, which include the development of groins and breakwaters as ways of mitigating shore erosion.⁵¹

Some of the methods for shoreline protection mandate government adopt a specific role. For example, development of private structures meant to keep rising water at bay, seawalls for instance, are generally adopted through a process of permitting that is controlled by local land use authority.⁵² Government is generally acting in its regulatory role when reviewing applications from private landowners to develop. This is particularly true when government prohibits development under zoning regulations such as overlay districts. However, when government adopts the role of property owner in choosing whether to armor against the tide – on a state-owned beach property adjacent to privately

⁴⁴ Titus, *supra* note 14.

⁴⁵ *Euclid*, 272 U.S. 365 (1926).

⁴⁶ U.S. CLIMATE CHANGE SCIENCE PROGRAM SYNTHESIS AND ASSESSMENT PRODUCT 4.1, COASTAL SENSITIVITY TO SEA-LEVEL RISE: A FOCUS ON THE MID-ATLANTIC REGION 88-97 (2009), available at http://epa.gov/climatechange/effects/coastal/pdfs/SAP_4-1_SynthesisandAssessmentProduct.pdf [hereinafter *Mid-Atlantic SLR Report*].

⁴⁷ *Id.* at 88.

⁴⁸ *Id.* at 89.

⁴⁹ *Id.* at 91.

⁵⁰ *Id.* at 91-92.

⁵¹ *Id.* at 92.

⁵² See generally *Euclid*, 272 U.S. 365 (1926).

owned beach property, for example⁵³ – it is not acting in a regulatory capacity. Its choice to act (or not) should generally not give rise to a regulatory takings claim no matter the impact the government decision has on private land. The same should be true when government is acting in its role as trustee of the public trust rights that accompany the shoreline. The government may have obligations towards the defined rights reserved by the public in the near shore, but these trust obligations do not extend to the private interests of littoral landowners.

The elevation of land surfaces, particularly beach nourishment, creates an interesting set of issues when viewed through the lens of the different roles government might take in approaching this problem. For example, a private landowner (or group of landowners) may wish to nourish the existing shoreline in order to stem ongoing sea level rise. Government acting in its regulatory capacity would generally review the local regulations to determine if the activity falls within normal permitting guidelines. If the government has enacted a regulation prohibiting such activities, then it would likely deny the proposed activity setting up a potential regulatory takings claim (depending on what interests and rights the private landowners claim are diminished by the government action).

If government is instead acting as a property owner in the above example, then it has other options in dealing with the proposed nourishment project. For example, the private landowners adding sand to the existing shoreline would likely push the tide line seaward. Since the government is the owner of submerged lands seaward of the tide line,⁵⁴ such an act would frustrate proprietary property rights of the government. In such a situation, the government may choose to prevent the nourishment project by advancing its property rights, or at least use its property rights as the means to engage the private landowners to develop a mutually agreeable solution to the problem. In either case, the interaction between the public and private interests is quite different when the government takes on the role of a property owner as opposed to the role of a regulator.

This tension between public and private interests was at the heart of the *Stop the Beach Renourishment* case mentioned earlier.⁵⁵ In this judicial takings case, private landowners claimed harm due to the State of Florida's decision to nourish a beach, as the nourishment resulted in the private landowners' property being disconnected with the water. The nourishment project added sand between the statutorily defined baseline separating public and private land,⁵⁶ and once the project had been completed, the delineated boundary was fixed so long as the state maintained the renourished beach.⁵⁷ While no judicial taking was ultimately found by the U.S. Supreme Court, the basis for the takings claim (removing the littoral landowners' right to be connected to the water) was *legislative*. The state was thus taking a *regulatory stance* in allowing the beach nourishment project under Florida's Beach and Shore Preservation Act.⁵⁸ While Florida has a longstanding statutory tradition of enacting public works projects for beach protection, specifically nourishment, it is interesting to consider the alternative evolution this case could have had from a legal standpoint had Florida simply defended the private landowner complaints from the role of property owner rather than regulator.⁵⁹

⁵³ There are other forms of "armoring" that can take place within the submerged land areas of the ocean. For example, jetties, groins, and breakwaters are methods of armoring often used by governments to protect public trust obligations depending on the circumstances presented that take place almost exclusively within publicly owned submerged lands.

⁵⁴ 43 U.S.C. §1301.

⁵⁵ *Stop the Beach Renourishment*, 130 S.Ct. 2592 (2010).

⁵⁶ FLA. STAT. ANN. § 161.41.

⁵⁷ *Id.* § 161.191.

⁵⁸ *Id.* §§ 161.011 to 161.76.

⁵⁹ See Sax, *supra* note 7. This case is factually instructive because the government action in deciding to nourish the beach (and thus protect the abutting private landowners from sea level rise) was challenged by the private landowners as a taking. The government was acting pursuant to its statutory authority, which the U.S. Supreme

B. Retreating From the Shore

Choosing to protect the shore keeps humans within the ocean's zone of influence because the policy holds back the water in one fashion or another. What shore protection does not do is hold back storm surges that can accompany rising seas from human habitation that is near the seashore.⁶⁰ Shore protection also does little to prevent the continuing rise of the ocean.⁶¹ In this way, shore protection creates a kind of "arms race" where there is a constant battle between rising seas and the need to continually hold back its approach. An alternate policy direction in dealing with sea level rise is to remove human development from the impending danger. Retreat allows for the ocean to take its natural course, while also allowing human habitation – including investments in infrastructure – to move landward away from the advancing coastline.⁶² If shore protection is about managing the environment, retreat is about managing human expectations.⁶³

Retreat policies can take a variety of forms. For example, government can compel retreat by limiting coastal development through the following legal mechanisms: *minimum setbacks* from the sea that correspond to historical rates of erosion;⁶⁴ *elevation setbacks* (flood hazard regulations) where development can only occur above a set minimum elevation;⁶⁵ *density restrictions* on development in a coastal area;⁶⁶ and *size limitations* of buildings in sensitive coastal habitats.⁶⁷ In each of these cases, depending on the impact regulations have on a particular private landowner, regulatory takings claims are a potential. The government action contains regulatory characteristics, and the ultimate enforcement of these kinds of restrictions will undoubtedly impact private landowner expectations.

Other forms of retreat are less regulatory in nature, focusing more on the government's role as protector of public safety (potentially including the trustee role under the public trust doctrine). Examples of these forms of retreat include: *buying programs* where the government uses its eminent domain power to purchase sensitive coastal areas in order to protect the public,⁶⁸ *conservation easements* where government (or other entities) purchase the right to keep portions of the land in an undeveloped state,⁶⁹ and *rolling easements* where development may be allowed but the risk of loss is shifted from the public to the private landowner.⁷⁰ In certain states rolling easements have been

Court ultimately determined was based on a background principle of law. It would be interesting to see the evolution of this case had Florida simply defended the action on the grounds of a valid exercise of rights as a property owner of submerged lands.

⁶⁰ U.S. Global Change Research Program, *supra* note 3.

⁶¹ *Id.*

⁶² See generally Titus, *supra* note 7.

⁶³ Mid-Atlantic SLR Report, *supra* note 46, at 93. "Retreat" may occur as an unplanned event after a disaster, and also as a planned event in anticipation of sea level rise. The form of retreat being described in this section is based on a planned retreat in anticipation of sea level rise.

⁶⁴ *Id.* at 95; see also Sax, *supra* note 7.

⁶⁵ *Id.*

⁶⁶ *Id.* at 96.

⁶⁷ *Id.*

⁶⁸ This is obviously a form of "taking" of private property if the landowner is unwilling to sell, but one likely justified under the eminent domain power of government. U.S. CONST., amend. V. One question in such eminent domain proceedings would be the value of the property, including whether fair market value would be assessed assuming the land is undevelopable (and possibly soon submerged land) or in some other manner. Because of these issues, it would benefit both the private and public interests to seek accommodations through negotiation on the buyout of the property.

⁶⁹ Mid-Atlantic SLR Report, *supra* note 46, at 95.

⁷⁰ *Id.* See also, Titus, *supra* note 7.

legislatively incorporated into the background principles of property law under that state's public trust doctrine.⁷¹

There are other policy options undertaken by government beyond the examples of shore protection and retreat identified above. In fact, it is probably more accurate to define the options available to government as a spectrum that spans a variety of interests, but, ultimately, they are all variations on required action in response to sea level rise. What is important here is that the governmental entity understands its role in ensuring the public is protected from the risks associated with climate change, including the fact that these risks can increase over time. As part of that understanding, government needs to balance the public and private interests at stake when managing these risks.

This article will now look at the specific makeup of Connecticut's coastal policy related to sea level rise, summarizing the development along its coast and the policies Connecticut employs to control coastal development. This summary will then be followed by a detailed review of takings analysis applied to some of the adaptation strategies described above, with specific application to current approaches employed by Connecticut.

IV. Connecticut Coastal Development

A. *Current Picture of Connecticut Coastal Development*

As it stands today, development along the Connecticut shoreline decreases as one travels east along the coast; consistently highest from Greenwich to Bridgeport to New Haven, and then dramatically dropping off as one continues east from New Haven to the Connecticut and Rhode Island border. The following analysis will examine this trend by comparing developed and undeveloped coastal areas, while also revealing recent growth rates that suggest a contrary trend of future development. The coastal map below provides a discernable illustration of the ensuing discussion (Figure 1).

⁷¹ See TEX. NAT. RES. CODE ANN. §§ 61.001 – 61.254. (Texas Open Beach Act). The *Severance* case, mentioned earlier in this article, places some limitations on rolling easements, indicating the extent of public rights to the immediately adjoining uplands may be limited in certain instances, particularly where the public right transfers to new areas of upland due to an avulsive event – like a storm – that drastically moves the sea inland in a punctuated event. The new immediately adjacent upland (which may have been wholly private upland without any public rights immediately prior to the event) may or may not have public rights of access attached to it. Rather than happening automatically, the state must prove an easement exists based on background principles of its state property law. *Severance*, 2012 Tex. LEXIS 260.

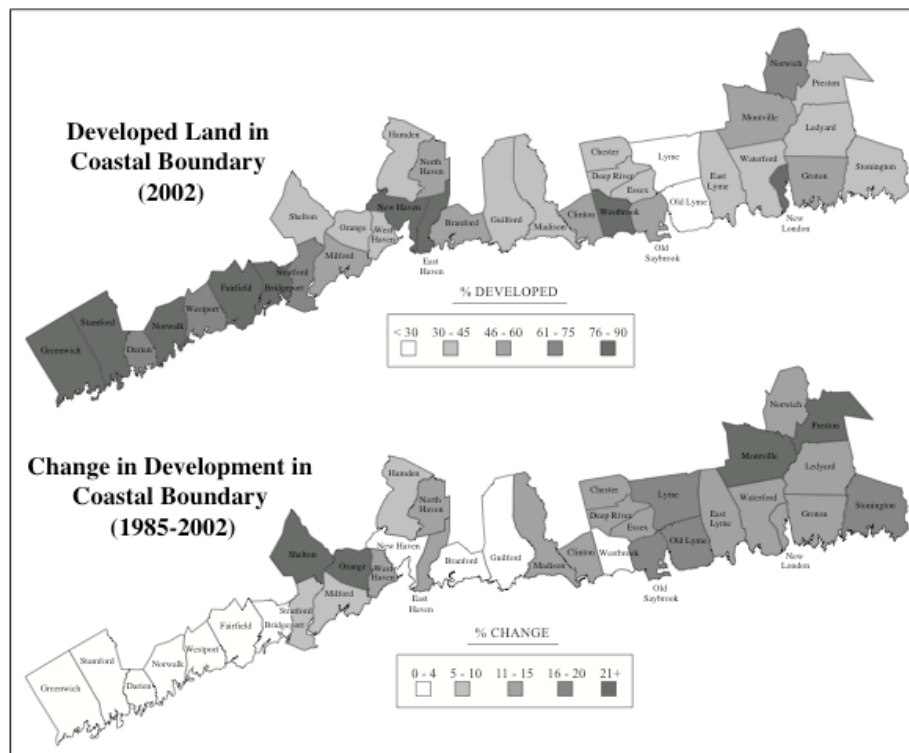


Fig. 1. Coastal Connecticut showing development change: total development (2002) and rate of development (1985-2002).⁷²

A majority of Connecticut's coastal development contains concentrated areas of highly developed commercial and industrial uses amongst expansive residential areas of varying density.⁷³ Commercial and industrial development tends to be highest in large seaport communities such as Stamford, Bridgeport, New Haven, and New London.⁷⁴ Residential areas encompassing the immediate shoreline, particularly to the west, contain affluent communities with high real estate market values.⁷⁵ Eastern

⁷² Data reflected in figure obtained from: Center for Land Use Education and Research, University of Connecticut, Coastal Area Land Cover Analysis Project (CALCAP), available at <http://clear.uconn.edu/projects/CALCAP/index.htm>.

⁷³ SOUTH WESTERN REGIONAL PLANNING AGENCY, TABLE OF REGIONAL LAND USE AND ZONING PERCENTAGE, available at http://www.swrpa.org/Uploads/Land_Use_Area_Table.pdf (summary of residential, industrial, and commercial land use (from west to east): In the South Western Regional Planning Area, residential use comprises 62% of lands and commercial and industrial uses occupy 3%); risingsea.net, *The Likelihood of Shore Protection: Connecticut*, <http://risingsea.net/ERL/CT.html> (last visited July 10, 2012) (in the Greater Bridgeport Regional Planning Area, residential use comprises 52% of lands, and commercial and industrial uses occupy 5%; to the east, in the Connecticut River Estuary Planning Region, residential use comprises 20% of lands and commercial and industrial uses occupy 2%; in the Southeastern Planning Area, residential uses comprise 15% of land, and commercial and industrial uses occupy just 1%).

⁷⁴ *Id.*

⁷⁵ U.S. Dept. of Commerce, Bureau of Economic Analysis, *Bearfacts*, <http://www.bea.gov/regional/bearfacts/action.cfm?yearin=2009&areatype=MSA&fips=14860>, (last visited July 10, 2012) (reporting that in 2009, Bridgeport-Stamford-Norwalk ranked first in the nation in per-capita personal income).

coastal communities have generally observed less development in the past as a result of heavy reliance on septic services, as well as a strong desire by local residents and wealthy vacation homeowners to maintain the rural, small town atmosphere along the coast.⁷⁶ Even with these development constraints in place, eastern coastal communities are exhibiting faster rates of growth in recent years than western portions of the state, particularly along the Connecticut and Thames estuaries⁷⁷ (See Figure 1 above).

A majority of the undeveloped Connecticut shoreline, classified as “protected open space,”⁷⁸ is held by public entities and occurs eastward of New Haven, beginning in the open spaces of Young’s Pond Park, East River Wildlife Management Area and Connecticut’s largest public beach park – Hammonasset State Park.⁷⁹ This trend continues through the easternmost communities of Middlesex and New London Counties,⁸⁰ where active partnerships between municipalities and land conservancies have helped to preserve undeveloped coastal areas.⁸¹ Although undeveloped land is comparably less in western coastal communities, several dozen public recreation areas are scattered along this portion of the coast, many of which have already undergone adaptation strategies including shoreline protection.⁸²

B. Current System of Coastal Land Use Regulation in Connecticut

Connecticut’s Coastal Management Program was approved in 1980 and functions under the statutory umbrella of the Connecticut Coastal Management Act (CCMA).⁸³ In addition to the CCMA, the state’s management program also regulates activities in tidal, coastal, and navigable waters and tidal wetlands under the Structures Dredging and Fill Act⁸⁴ and the Tidal Wetlands Act.⁸⁵ Upon its enactment, the CCMA established a two-tiered coastal zone consisting of a “Coastal Area”⁸⁶ defined by

⁷⁶ Each community is required by Connecticut law to create and update conservation and development plans. CONN. GEN. STAT. ANN. §8-23. For an example of the reasons identified by Connecticut eastern coastal communities for less development, *see generally* TOWN OF OLD LYME CONNECTICUT: PLAN OF CONSERVATION AND DEVELOPMENT (2010), *available at* http://www.oldlyme-ct.gov/Pages/OldLymeCT_BComm/O%20Lyme%20POD%20web%2012-28-10.pdf.

⁷⁷ Since 1990, when 61% of the Southeastern Regional Land Area was undeveloped, about 1% of the region has been developed every two years. Center for Land Use Education and Research, *supra* note 72.

⁷⁸ 31% of Connecticut’s total shoreline is held in protective forms of ownership, of which, 23% is held by public entities, 4% held by land trusts, and 1% held by conservation easements. CONN. DEP’T OF ENVTL. PROTECTION, DRAFT CONNECTICUT COASTAL AND ESTUARINE LAND CONSERVATION PROGRAM PLAN 15 (2007), *available at* http://www.ct.gov/dep/lib/dep/long_island_sound/coastal_management/celcp_plan.pdf.

⁷⁹ *Id.*

⁸⁰ *Id.* (In the Connecticut River Estuary planning area committed open space accounts for 17% of the land area; and in the Southeastern Connecticut planning area this figure is slightly lower at 13%).

⁸¹ *Id.*

⁸² Regional planners from the South Western and Greater Bridgeport Regional Planning Agencies have commented on public and private commitments to using armoring or beach nourishment strategies to protect the region’s treasured parks and private clubs along the coast. *Id.*

⁸³ CONN. GEN. STAT. ANN. §§22a-90 – 22a-111. The Connecticut Coastal Management Program is administered by the Office of Long Island Sound Programs (OLISP) within the Department of Energy and Environmental Protection (DEEP).

⁸⁴ *Id.* §§22a-359 to 22a-363f.

⁸⁵ *Id.* §§22a-28 to 22a-35.

⁸⁶ *Id.* §22a-94 (The “Coastal Area” consists of 36 coastal communities).

a “Coastal Boundary.”⁸⁷ In general, coastal zone development is regulated at the local level through municipal planning and zoning boards under the policies of the CCMA, with technical assistance and oversight provided by the Office of Long Island Sound Programs (OLISP).⁸⁸

Connecticut’s Department of Energy and Environmental Protection (DEEP) has direct regulatory jurisdiction from tidal wetlands seaward.⁸⁹ Under the state’s public trust doctrine,⁹⁰ the public has a right to access the portion of any beach extending from the mean high tide line to the water.⁹¹ Under local zoning and planning authority,⁹² municipalities have regulatory jurisdiction of upland activities down to the mean high tide line.⁹³ In general, there will be an area of overlapping jurisdiction from the high tide line down to the mean high water line where both the DEEP and the municipality will regulate proposed activities.⁹⁴

All development and planning in the coastal zone must comply with the legal standards and policies set forth in the CCMA.⁹⁵ Exactly who is responsible for direct compliance and which legal process applies to coastal development applications depends on the nature and location of the proposed activity.

Activities occurring within state jurisdiction must obtain a permit directly from the OLISP.⁹⁶ But, construction of flood or erosion control structures seaward of the high tide line requires a coastal permit from the DEEP.⁹⁷ Although both statutory and regulatory policies strongly discourage building such structures,⁹⁸ property owners are increasingly pressuring state and local regulatory agencies to allow structures that do not meet the criteria of the CCMA.⁹⁹ In fact, the Office of Long Island Sound Programs recently noted “such structures are increasingly being built without state or local authorization, stressing the already over-burdened enforcement programs in the state.”¹⁰⁰

⁸⁷ *Id.* at §22a-94(b) (Located within the Coastal Area, the “Coastal Boundary” is generally described as the 100-year frequency coastal flood zone or the area within the 1,000 ft. linear setback from the mean high water mark or tidal wetland, whichever is farthest).

⁸⁸ *Id.* at §22a-90.

⁸⁹ *Id.* at §§22a-32 to 22a-35 (Tidal Wetlands Act); §§22a-359 to 22a-363f (regulating the placement of structures, as well as dredging and filling of tidal coastal navigable waters).

⁹⁰ CONN. GEN. STAT. ANN. §§ 22a-16 to 22a-17.

⁹¹ *Leydon v. Town of Greenwich*, 777 A.2d 552, 557 n.17 (Conn. 2001).

⁹² CONN. GEN. STAT. ANN. §§ 8-1 to 8-13a.

⁹³ *Id.* §§ 22a-105; *see also* Office of Long Island Sound Programs, *State and Municipal Regulatory Jurisdictions Fact Sheet 1*, in CONN. DEP’T OF ENVTL. PROTECTION, CONNECTICUT COASTAL MANAGEMENT MANUAL (2010), available at <http://www.ct.gov/dep/cwp/view.asp?A=2705&Q=323814>.

⁹⁴ *Id.*

⁹⁵ CONN. GEN. STAT. ANN. §22a-90 *et seq.*

⁹⁶ *Id.*

⁹⁷ *Id.* §§ 22a-359 to 22a-363f.

⁹⁸ *Id.* §22a-92. Programs staff and/or local boards are responsible for ensuring that certain “adverse impacts must be avoided or, if avoidance is not possible, must be minimized for the project to be lawfully approved.” Activities may proceed if they can be demonstrated as “unavoidable and necessary to protect water-dependent uses, infrastructural facilities, or an inhabited structure(s) that predates January 1, 1980, the effective date of the Connecticut Coastal Management Act (CCMA).” Office of Long Island Sound Programs, *Shoreline Flood and Erosion Control Structures Fact Sheet 2-3*, in Connecticut Coastal Manual, *supra* note 93.

⁹⁹ CONN. DEP’T OF ENVTL. PROTECTION, UPDATED ASSESSMENT AND STRATEGY OF THE CONNECTICUT COASTAL MANAGEMENT PROGRAM 14 (2010), available at http://www.ct.gov/dep/lib/dep/long_island_sound/coastal_management/2010_assessment_and_strategies_notice_draft.pdf [hereinafter *Updated Assessment*].

¹⁰⁰ *Id.*

The “coastal site plan review process” is the fundamental planning mechanism for coastal development permitting under local jurisdiction.¹⁰¹ The review process was developed to help communities meet their statutory obligations set forth in the CCMA. The review process is required for certain “site plans, plans and applications for activities or projects located fully or partially within the coastal boundary.”¹⁰² As such, the majority of public and private property is managed under the site plan review process administered by municipalities, rather than under the direct authority of the DEEP-OLISP.

Municipalities are required to refer site plan reviews to the OLISP under two circumstances: first, if the application includes a shoreline flood and erosion control structure; and second, if the application includes any proposed municipal plan of conservation or development, municipal coastal program, or zoning regulation (or changes thereto).¹⁰³ Under these two conditions, the OLISP staff has the right to make recommendations through a standard review process.¹⁰⁴ The commissioner of the DEEP has the right to appeal a municipal decision; however, the final authority over coastal development lies solely with the municipal land use board or commission responsible for defending that coast.¹⁰⁵

Coastal management, like land use planning in Connecticut, is fundamentally controlled at the local level. This leaves the role of the state, through DEEP, to be one of persuasion and recommendation, rather than proscription. This approach is clear in the policies and standards set forth in the CCMA¹⁰⁶ as well as other coastal area development statutes. For example, coastal communities are required to develop local conservation and development plans conforming to state standards outlined in the State Plan of Conservation and Development.¹⁰⁷ However, there is no state-mandated review of local plans so the state does not ensure the local plans conform to state standards.¹⁰⁸ As a result, local plans function as an instrument the state uses to *influence*, rather than approve coastal development.

In summary, local decision-making authority allows municipalities in Connecticut considerable influence on statewide coastal land use and development because there are no state laws mandating the development and implementation of specific setbacks, overlay districts, or other land use policies to direct coastal development away from hazardous areas. According to DEEP, the only requirement is that all coastal communities implement the coastal hazards policies of the CCMA in their planning and zoning decisions.¹⁰⁹ Looking forward, Connecticut DEEP has acknowledged its need to obtain modern data and develop new policy directions to improve its capacity to deal with sea level rise and other

¹⁰¹ CONN. GEN. STAT. ANN. §22a-105.

¹⁰² *Id.*

¹⁰³ CONN. GEN. STAT. ANN. §22a-109 (defining requirements for application and approval of shoreline flood and erosion control structures) and §22a-104(c) (requirements for any proposed municipal plan of conservation or development, municipal coastal program, or zoning regulation, etc.); see also Office of Long Island Sound Programs, *Mandatory Referrals Fact Sheet 1*, in Coastal Management Manual, *supra* note 93.

¹⁰⁴ CONN. GEN. STAT. ANN. §22a-109.

¹⁰⁵ *Id.* §22a-110.

¹⁰⁶ *Id.* §22a-92; see also Office of Long Island Sound Programs, *Coastal Site Plan Review Fact Sheet 4*, in Coastal Management Manual, *supra* note 93 (“Even if the project does not require mandatory referral, we strongly recommend consultation with OLSIP regarding coastal site plans for major development proposals, all waterfront proposals, and proposals where wetlands, beaches and dunes, coastal bluffs and escarpments or coastal waters could be affected.”).

¹⁰⁷ CONN. GEN. STAT. ANN. §§22a-42 to 22a-42a.

¹⁰⁸ Updated Assessment, *supra* note 99, at 19.

¹⁰⁹ *Id.* at 18.

climate related phenomena in coastal areas.¹¹⁰ In subsequent sections, the Connecticut regulatory framework summarized here will be placed in the larger context of generally accepted coastal development strategies. In addition, suggestions will be made to support strategies specific to Connecticut's regulatory regime.

V. Regulatory Takings Analysis of Adaptation Strategies

In this section, we explore how federal constitutional limitations impact government's policy responses to sea level rise brought on by climate change. To begin, a background discussion of the Fifth and Fourteenth Amendments to the U.S. Constitution (hereinafter generally referred to as "taking" or "takings") are discussed including an outline of the several kinds of government actions that can result in a taking of private property. This discussion will be supplemented with relevant case law highlighting the major principles distinguishing government actions that result in takings from actions that are insulated against takings claims. Specific emphasis is placed on how government conduct is categorized; for example whether the government is acting as an owner of tidelands, a trustee of tidelands on behalf of the public, or as a regulator of private landowners whose property abuts tidelands. Finally, the analysis developed in this section will be applied to the current legal/policy framework that exists in the State of Connecticut.

A. Background on Takings

What is traditionally referred to as "takings law" deals with limitations on government actions that result in a diminished use of a citizen's private property without that citizen's consent.¹¹¹ The basis for this protection stems from the Fifth and Fourteenth Amendments to the U.S. Constitution.¹¹² Most States, and specifically Connecticut, have adopted similar takings limitations in their respective State Constitutions.¹¹³ It is important to note that not all government intrusions into private property rights result in a taking. Indeed, there are many examples where government actions affect private property rights but do not trigger constitutional scrutiny. These examples will be more fully described in the next section where government conduct is placed into different categories based on the *role* adopted by government in relation to the actions it is taking to protect coastal resources. But first this section will summarize the major categories of takings so they can later be referenced when the several categories of government conduct are explained.

¹¹⁰ Consider the inferences made in the following statement made by OLISP staff after describing how modern data can help to identify particularly sensitive coastal area, "areas may require prioritization in terms of regulatory changes or recommendations for adaptive management options not presently at the forefront of the regulated community's mind." *Id.* at 20.

¹¹¹ For purposes of this article it is presumed the government actions being discussed here do not qualify as *eminent domain* actions, meaning this article is not discussing the instances where a government is purposefully and intentionally attempting to "take" private property for a public purpose and willing to pay fair market value for the private property in question. Rather, all government actions described herein relate to government actions that *result* in an impingement of private property rights without the intention of government to exercise its eminent domain power.

¹¹² U.S. CONST., amends. V, XIV. The Fourteenth Amendment makes the prohibition on government takings applicable to the states.

¹¹³ CONN. CONST. art. I, § 11.

More traditional takings claims tend to focus on *physical occupation*, where a government entity either condemns private land for a government purpose without compensation¹¹⁴ or where the government would allow, through *regulation*, for the permanent physical occupation of private property, again without compensation.¹¹⁵ As noted in *Loretto*, the government can sustain a permanent physical occupation so long as it meets the requirements of eminent domain: the permanent physical occupation is for a “public purpose” and the government pays the landowner just compensation (fair market value) for the occupation.¹¹⁶ Whether by directly taking the property or by allowing for the occupation of private property, the government act of *possessing* the property – in whole or in part – distinguishes these forms of taking from regulatory takings where government does not actually possess the property interest of the private landowner.

A regulatory taking – taking through regulation rather than physical possession – is a less clear form of takings analysis especially when it relates to government planning that impedes use of private property. Jurisprudential foundations for regulatory takings began in the early 20th Century, where court decisions began to recognize a taking could occur by regulation, meaning government actions that did not result in the physical occupation of private property could result in the unconstitutional taking of that property.¹¹⁷ The U.S. Supreme Court identified that while the regulation of private property was within the normal police powers of government, “... if regulation goes too far it will be recognized as a taking.”¹¹⁸

The Supreme Court has recognized three general categories of regulatory takings: permanent physical occupations,¹¹⁹ regulations that deprive landowners of all economic use of their property,¹²⁰ and regulations that deprive landowners of some use or value of their land.¹²¹ The first category of regulatory takings described here – permanent physical occupation – is seldom the basis for seaside landowners complaining about government policies that impact their use of land. Rather, most of regulatory takings claims made by these landowners stem from the second and third categories of regulatory takings claims: those categories claiming some or all of the use of the private land has been proscribed through government regulation.

Powers not delegated to the United States by the Constitution are reserved to the states by the Tenth Amendment to the U.S. Constitution.¹²² Utilizing a wide variety of these reserved powers, including the police power, state governments have often passed laws limiting the use of private property. However, the ability of a state or local government to defend against a regulatory takings claim based on these police powers has been limited by the U.S. Supreme Court. Two cases, *Penn Central* and *Lucas*, helped to identify the difference between when the exercise of police power to regulate land does not require compensation, and when government overreaches to the point that a regulatory taking occurs.

Penn Central established a three-part test to evaluate when regulation that deprives a landowner of some use or value of their land (category three, described above), may result in an unconstitutional

¹¹⁴ See ROBIN KUNDIS CRAIG, *THE CLEAN WATER ACT AND THE CONSTITUTION: LEGAL STRUCTURE AND THE PUBLIC'S RIGHT TO A CLEAN AND HEALTHY ENVIRONMENT* 149 (2d ed. 2009).

¹¹⁵ See *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419 (1982).

¹¹⁶ *Id.* at 435-40.

¹¹⁷ See *Pa. Coal Co. v. Mahon*, 260 U.S. 393 (1922).

¹¹⁸ *Id.* at 415.

¹¹⁹ *Loretto*, 458 U.S. 419 (1982).

¹²⁰ *Lucas v. S.C. Coastal Council*, 505 U.S. 1003 (1992).

¹²¹ *Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 (1978); *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302 (2002).

¹²² U.S. CONST., amend. X.

taking of private property without just compensation.¹²³ Under the *Penn Central* test courts evaluate the following factors: the economic impact of the regulation on the landowner; the extent to which the regulation interferes with legitimate investment-backed expectations; and the character of the government action.¹²⁴ *Penn Central* acknowledged that government regulating through its police power can impact the value of private property. However, that impact must be balanced against the evaluative criteria identified above.¹²⁵ When the weight of the evidence tips the analysis of those criteria in favor of the private property owner, then a regulatory taking may be found. The question left somewhat unresolved in *Penn Central* is what facts might tip the scales towards a regulatory takings rather than towards a constitutional exercise of police power. This was partially discussed later by the U.S. Supreme Court in the *Lucas* case.

In *Lucas*, the owner of a developable piece of coastal property was prevented from developing the property based on a new regulation by the state agency responsible for protecting coastal resources.¹²⁶ The private landowner, Lucas, challenged the new regulation prohibiting all future development partially on the ground that the regulation deprived him of all viable economic use of his property.¹²⁷ The U.S. Supreme Court identified the rights of states to enact regulations through their police power, but limited this power by stating that a regulation that removes all viable economic use of property results in a regulatory taking,¹²⁸ thus creating the second category of regulatory takings described above.

Although *Lucas* held a regulation that deprives landowners of all viable economic use of their property might result in an unconstitutional taking, the Court identified a major exception in rendering the decision. Specifically the Court noted the following: “[w]here the State seeks to sustain regulation that deprives land of all economically beneficial use, we think it may resist compensation *only if the logically antecedent inquiry into the nature of the owner’s estate shows that the proscribed use interests were not part of his title to begin with.*”¹²⁹ The Court here is focusing on principles of state property law, indicating a regulation that removes all economic use of the property will be a taking unless that regulation reflects “... background principles of the State’s law of property and nuisance already placed upon land ownership.”¹³⁰ As the Court in *Lucas* further explained in outlining the “background principles of law” exception to a regulatory taking, “A law or decree with such an effect must, in other words, do no more than duplicate the result that could have been achieved in the courts – by adjacent landowners (or other uniquely affected persons) under the State’s law of private nuisance, or by the State under its complementary power to abate nuisances that affect the public generally...”¹³¹

To review, there are generally three categories of regulatory takings: a *Loretto*-type regulation resulting in a physical occupation of private property; a *Lucas*-type regulation diminishing all economic use of the private property; and a *Penn Central*-type regulation diminishing some use or value of the private property. The *Loretto*-type category of regulatory takings is clear; if a regulation allows for the physical occupation of one’s property, then a taking will result. In some ways, this can be seen as government taking affirmative steps to allow for the occupation of private property by some entity

¹²³ Penn Cent. Transp. Co. v. City of New York, 438 U.S. 104 (1978).

¹²⁴ *Id.* at 124.

¹²⁵ *Id.*

¹²⁶ *Lucas*, 505 U.S. at 1008-09.

¹²⁷ *Id.*

¹²⁸ *Id.* at 1031-32.

¹²⁹ *Id.* at 1027. (emphasis added)

¹³⁰ *Id.* at 1029.

¹³¹ *Id.*

other than the owner. (In *Loretto* it was the allowance of cable company equipment to be affixed to the private property through regulation.)¹³²

Both the *Lucas*- and *Penn Central*-types of regulatory takings are less clear; neither offer an obvious path regarding what kinds of police power actions might constitute a total deprivation of economic use nor, under the *Penn Central* analysis, do they clearly spell out how the interests of the respective parties are to be weighted.¹³³ It should be of little surprise then that governments approach regulatory takings issues cautiously. What governments have seemed to focus on instead are the background principles of state property law as a means of defending their actions against regulatory takings claims.¹³⁴ As identified in the *Lucas* case and pointed out above, these background principles of property law generally include common law property traditions adopted by the state such as nuisance and custom. However, there are other general common law traditions and principles in property law that specifically apply to coastal issues including the state as owner of submerged lands and also as trustee of public rights within and around the coastal zone.

Some of these common law traditions of property law identified above are discussed in greater detail in the next section. The perspective taken is one of categorizing the government conduct in relation to the coastal region at issue: specifically the government as “regulator” of private land; government as the “owner” of public resources; and finally government as “trustee” of public resources. The reason why this approach is taken is because it focuses the analysis on the *role* government adopts when instituting a policy action, thereby more easily defining the basis of the government activity. If the basis relies on background principles of property law, then it may be clearer to see whether the activity falls within or outside a regulatory takings challenge. The hope is that government agencies, by focusing more closely on the categorization of their policy-planning role, will be more readily capable of developing policies that steer clear of regulatory takings claims.

B. Categorization of Government Conduct

Focusing on the role government adopts when approaching a coastal problem, like sea level rise, can be especially helpful in steering clear of regulatory takings claims, since the manner of the government interaction with the private landowner impacts the likelihood of establishing a regulatory takings claim. As a simple example, if the government is acting in its capacity as regulator, then it is more likely that regulatory takings are triggered simply because the government is clearly engaged in *regulation*. However, if the government is acting in a capacity outside its role as regulator, then it is harder to show the government conduct equates to regulation of the kind that triggers a regulatory takings claim.

While some may see the distinction described above as semantics, there is clear tactical value in establishing a policy approach that begins by defining the role government chooses in coastal policy development, when it comes to takings claims. The reason relates back to the earlier comment about the relative “muddiness” of regulatory takings jurisprudence. When it is unclear how courts will handle facts related to a regulatory takings claim, it is important for governments to be able to help courts

¹³² *Loretto*, 458 U.S. at 435-40.

¹³³ In the *Penn Central* opinion, Justice Brennan, writing for the majority opinion, noted that instead of setting forth clear standards, the Court had adopted “ad hoc factual inquiries” to determine whether a regulatory taking had occurred. *Penn Cent. Trans. Co.*, 438 U.S. at 124. The idea left in *Penn Central* is that regulation that passes some degree of damage to the economic value of the property will result in an unconstitutional taking, but there is no uniform measure offered of when this will occur. *Lucas* aids in the analysis by stating the obvious: removal of all viable economic use of the property through regulation equates to a taking. *Lucas*, 505 U.S. at 1031-32. However, anything short of this is a bit of a crap shoot.

¹³⁴ See Byrne, *supra* note 6.

establish the conceptual framework from which a regulatory takings analysis will occur. The conceptual framework adopted by the court – and also between the disputing parties – will form the foundation of the regulatory takings analysis. If the analysis begins from a governmental role that is not regulatory in nature, then government comes to the defense of its actions in a stronger position.

Even when the government action is clearly regulatory in nature, it is important to acknowledge this up-front because it allows government to more accurately define the purpose of the regulation. For example, government regulation that is reinforcing background principles of existing property law – say preventing a public nuisance – would be outside a regulatory takings claim because the government is proscribing a use that was not part of the private landowner's title.¹³⁵ Again, the purpose here is to focus on categorizing government conduct so that a clear articulation of policy direction can be made at the outset of government actions. A clear articulation will help government bodies defend against takings claims both substantively, by ensuring their actions are in accordance with law, and procedurally, by helping government clearly identify its role in a court proceeding should a takings challenge be forthcoming. In the next several sections, the different categories of government conduct are discussed in greater detail.

1. Government as Regulator of Private Property

Viewing government as a regulator of private property suggests government is taking actions that fit within the definition of regulation. This means government is acting within its traditional role of legislation and administration. Government action within such traditional regulatory roles tends to trigger regulatory takings considerations.¹³⁶ To quickly review, regulatory takings can happen by: physical occupation, removal of all economic value, or removal of some value or use of the private property. If we look at a continuum where the Fifth Amendment taking is placed at one end of the spectrum, and the Tenth Amendment police power is placed at the other end, we can begin to think about the kinds of regulations that might be more likely to result in a regulatory takings (those regulations nearer to the Fifth Amendment end), as opposed to the kinds of regulations that might reflect background principles of law and be well within the traditional police powers of the Tenth Amendment.¹³⁷ The key here is to determine what kinds of government regulatory stances are most insulated from takings challenges.

As stated earlier, the Tenth Amendment reserves to state governments the power to enact legislation and regulations for the health, safety, and welfare of the citizenry.¹³⁸ As also stated earlier, the U.S. Supreme Court has indicated there are limits to government's ability to claim a Tenth Amendment privilege; specifically, such a privilege cannot be claimed for regulations that result in a prohibition of all economically beneficial use of land.¹³⁹ So where is the safe ground? It seems the safest ground is when a regulation, at its inception, is derived wholly as a rendition of preexisting state property rights. Or, in other words, the safe ground exists more clearly when government is enforcing background principles of state property law through legislation or regulation.¹⁴⁰ A clear example of this

¹³⁵ *Lucas*, 505 U.S. at 1027.

¹³⁶ *Id.* (South Carolina passed legislation for the management of coastal resources. The South Carolina Coastal Commission passed regulations under the legislative power granted to it by the State legislature to protect coastal resources by limiting development.)

¹³⁷ In this conceptual exercise, it is presumed a government power falling squarely within the meaning of the Tenth Amendment *does not* invoke a Fifth Amendment takings. Governments can certainly act in their authority to protect the public that also results in a regulatory taking in the process. *See Lucas*, 505 U.S. at 1031-32.

¹³⁸ U.S. CONST., amend. X

¹³⁹ *Lucas*, 505 U.S. at 1022-23.

¹⁴⁰ *Id.*

is when a state government chooses to incorporate a common law principle into its statutory scheme, such as when a common law public nuisance doctrine is codified by the legislature. Enforcement of this codified public nuisance would generally not result in a regulatory takings claim because the action is based on background principles of property law, in this case the doctrine of public nuisance.¹⁴¹ So long as the public nuisance is proven to have existed within the state's tradition of property law throughout history, the private landowner cannot claim a regulatory taking because she never had the property right to commit the public nuisance in the first place.¹⁴²

While the codification of common law public nuisance traditions may be a clear example, other examples of government acting in its role as a regulator are less clear under a takings analysis. This is especially true when legislative and administrative policy deviates from common law traditions. Professor J. Peter Byrne sets forth a strong summary of how this occurs, especially in relation to managing policies geared at dealing with property rights within the coastal zone under conditions of sea level rise.¹⁴³ As professor Byrne notes, "... nuisance litigation notoriously fails to adequately weigh the broad public interests present in environmental disputes."¹⁴⁴ Professor Byrne supports this proposition by making the case that current statutory and regulatory enactments related to coastal public policy reflect a greater understanding of the threats posed to the public due to climate change.¹⁴⁵ This includes not only threats to littoral landowners themselves, but also to adjacent landowners when one engages in practices such as armoring to protect against rising seas.¹⁴⁶ He also highlights the threats such actions pose to government as both a property owner of submerged lands¹⁴⁷ and as a caretaker of environmental concerns including ecosystem services.¹⁴⁸

What Professor Byrne is highlighting in his essay is the idea that statutory frameworks, including administrative implementation of statutory goals, is often a superior means of inculcating the advancements of society into a legal framework. In the context of sea level rise, advancements in science have allowed us to better forecast the likelihood and impacts of climate change.¹⁴⁹ This kind of information would not be available under traditional common law. Thus, a modern government has tools to use this forecasting to create proactive policies to protect the fundamental health, safety, and welfare of citizenry that is the hallmark of the Tenth Amendment to the U.S. Constitution. By focusing narrowly on common law doctrines as the basis of background principles, judicial review can place government in the awkward position of "retrofitting" forward-looking policies into a background principles framework of common law tradition.

Recent court cases, where the government is prohibiting the use of armoring devices, seem to highlight this problem of relying on common law principles to justify forward-looking government regulations.¹⁵⁰ The courts have either chosen not to recognize a littoral landowner's common law right

¹⁴¹ See Caldwell, *supra* note 35, at 557–58.

¹⁴² *Id.*

¹⁴³ See Byrne, *supra* note 6.

¹⁴⁴ *Id.* at 634.

¹⁴⁵ *Id.* at 639.

¹⁴⁶ *Id.*

¹⁴⁷ *Id.* at 637 (citing *United States v. Milner*, 583 F.3d 1174, 1187 (9th Cir. 2009) for the proposition that a sovereign has a vested right to gains from a rising sea, thus property owner's armoring prevents this natural increase in sovereign land). This proposition is discussed further below when reviewing the government's role as an owner of public property.

¹⁴⁸ *Id.* at 638–39.

¹⁴⁹ See Intergovernmental Panel On Climate Change, *supra* note 3.

¹⁵⁰ See *Shell Island Homeowners Ass'n v. Tomlinson*, 517 S.E.2d 401 (N.C. Ct. App. 1999); *Grundy v. Thurston County*, 117 P.3d 1089 (Wash. 2005).

to protect their property from erosion¹⁵¹ or otherwise found the “common enemy rule” (a common law right) did not apply to seawater and therefore the private landowner had no property right being impinged by the prohibition against armoring.¹⁵² In both cases, the court felt compelled to analyze the regulatory takings claims through common law doctrine, and, in order to uphold the government regulation, the courts chose to find the non-existence of a property right that prior precedent had suggested always existed.¹⁵³

In reviewing the courts’ analyses in these cases, some interesting points arise in relation to policymaking from the government perspective. If government takes on the role of regulator, it presumably wishes to incorporate the most complete knowledge about dangers to the public when creating regulations. In order to mitigate risks associated with sea level rise, governments are looking to policies that place restrictions on coastal property rights including the right to armor. The government may choose these restrictions to protect both the public as well as ecological values associated with natural coastal landscapes. However, when government acts proactively through proscriptive powers, it steps into the sphere of regulatory takings. Once inside, government must rely on the courts’ ability and willingness to update traditional views of background principles of property law (like public nuisance) to include more forward-looking risks to the public like climate change. Recent case law suggests courts are having some difficulty doing this, especially in jurisdictions where there has been little expansion of traditional public nuisance principles adopting forward-looking factors and environmental risks in the definition of what constitutes a nuisance. For governments in these situations, they may be better off identifying a role beyond that of regulator.

2. Government as Owner of Public Property

Traditionally, governments tend to look at the problems of sea level rise and see policy prescriptions focusing on prohibitions of coastal land use. The idea is that sea level rise will create problems in coastal areas running the gamut from public safety (as the water inundates the land, developments including coastal infrastructure will be at risk) to environmental concerns (sea level rise will create incentives for protection measures like armoring, which limit the coastline’s ability to maintain important ecological features and functions). To timely deal with these problems, governments must use their regulatory authority to proscribe the kinds of conduct that will lead to these negative outcomes.

The purpose of this section is to highlight a slightly different approach government may opt to take to mitigate the impacts of sea level rise on coastal areas. In addition, this approach (government acting in its capacity as the owner of submerged land) can limit regulatory takings challenges; it may not limit *challenges* from aggrieved littoral landowners impacted by government actions, but it will limit the *likelihood* such challenges will succeed in a court of law since government, when acting as an owner of property, has rights like any other landowner in order to protect its property interest.¹⁵⁴ Of equal importance, when government is acting as a landowner, it is not regulating and, therefore, its actions logically should not result in a regulatory taking.¹⁵⁵

¹⁵¹ *Tomlinson*, 517 S.E.2d at 414.

¹⁵² *Grundy*, 117 P.3d at 1090.

¹⁵³ See *Byrne*, *supra* note 6, at 639.

¹⁵⁴ *Port of Seattle v. Oregon & W. R. Co.*, 255 U.S. 56, 63 (1921) (“The character of the [s]tate’s ownership in the land and in the waters is the full proprietary right.”).

¹⁵⁵ *Int’l Society for Krishna Consciousness, Inc. v. Lee*, 505 U.S. 672, 678 (1992) (Where the government is acting as a proprietor different standards apply than when it is acting simply in its regulatory capacity.).

This argument of government as landowner with proprietary interests at stake equal to those claimed by private littoral landowners is succinctly laid out by Professor Sax.¹⁵⁶ Simply put, the government is the owner of submerged land seaward of a defined boundary (usually the *mean high water mark* but the *mean low water mark* in certain states), while the private party claims ownership of the land landward of this boundary.¹⁵⁷ In summarizing this relationship between private and public owners of adjacent property, Professor Sax states the following:

Under ordinary circumstances, there is nothing particularly obscure or mysterious about these rights. For example, the littoral owner has a right to occupy and make economically productive use of his land. The state is entitled to have the public use the foreshore (the wet beach between high and low tide) for passage and recreation, and to employ coastal wetlands seaward of the MHTL as habitat. Assuming a rather stable situation at the water's edge, with the boundary moving modestly back and forth over time, these two uses can coexist with little or no conflict.¹⁵⁸

In a world where sea level rise is brought on by dynamic forces including climate change, this ideal state of equilibrium between private and public interests is frustrated. Today the demarcation line is moving, which means the respective rights of the property owners are also changing. Policymakers may wish to strategically take advantage of their rights as a property owner, and choose this role as a basis for achieving policy goals since the progression of sea level rise will highlight competing common law rights in private and public landowners. For example, if the private upland owner decides to utilize his common law right to defend against the rising tide by armoring,¹⁵⁹ this will impact the public's right to the natural movement of the water landward, adding to what would be publicly submerged land but for the private armoring preventing the sea's encroachment on the land. Conversely, if the public landowner wishes to fill portions of their submerged land, this will impact the private littoral landowner's common law right to "touch" the water's edge. The problem of sea level rise is further frustrated by different views on the right to protection. For example, certain jurisdictions favor the "common enemy doctrine" allowing owners to protect themselves against rising waters even at the detriment to an adjacent owner (supporting armoring for instance).¹⁶⁰ Other jurisdictions favor the "civil law rule," requiring the natural flow to occur unimpeded (supporting advancement of submerged land).¹⁶¹ In all examples presented here, none offer an ideal solution *between* property owners.

This pitting of opposing common law interests results in both parties having similar proprietary rights at stake. Rather than having to decide between equal property rights, a court will likely be

¹⁵⁶ See Sax, *supra* note 7.

¹⁵⁷ *Id.* at 641-42.

¹⁵⁸ *Id.* at 642.

¹⁵⁹ The right to armor or otherwise protect against the rising sea is not an absolute right that exists for all littoral landowners in all jurisdictions as has been indicated elsewhere in this article (see Part III). The traditional common law right is being highlighted here for the purposes of the example.

¹⁶⁰ See *Pflum v. Wayne County Bd. of Comm'rs*, 892 N.E.2d 233 (Ind. Ct. App. 2008).

¹⁶¹ *Page Motor Co., Inc. v. Baker*, 438 A.2d 739, 742 (Conn. 1980) ("Some jurisdictions have adopted the civil law rule which holds that 'the right of drainage of surface-waters, as between owners of adjacent lands, of different elevations, is governed by the law of nature.'" (quoting *Rutkoski v. Zalaski*, 96 A. 365 (Conn. 1916)).

persuaded to seek accommodations between the parties,¹⁶² which is precisely what government should be hoping to achieve in policy development related to sea level rise.¹⁶³ There are a variety of options available to accommodate the interests at stake.¹⁶⁴ The key difference here is that both parties are placed in a context where the focus is on resolving competing property rights, rather than the regulatory setting that creates positions between the public and private interests and invokes claims of regulatory takings.

The role of government as property owner is one way to move the focus away from regulation and towards creating equitable outcomes. While it is unlikely that a government can adopt holistic policies to deal with sea level rise based *solely* on its status as a property owner, allowing for the distinction to be part of the policymaking process can have significant advantages in how a government entity proceeds in implementing a proactive policy geared towards adapting to the effects of sea level rise brought on by climate change.

3. Government as Trustee of Public Property

For over a century, it has been well established that states hold title to submerged lands within navigable waters, and the states hold these lands in trust for the benefit of the public.¹⁶⁵ Public benefits generally include traditional rights of navigation, commerce, and fishing.¹⁶⁶ Importantly, the trustee obligations of the state in managing these public rights are not easily alienable. Thus, even when the state attempts to transfer the private interests (*jus privatum*) in submerged lands to a private party, the public rights of access and use remain and the state's duties as trustee remain as well.¹⁶⁷ Collectively this duty of the state to manage the public rights in navigable submerged lands is known as the *public trust doctrine*.

In some ways, the public trust doctrine creates an ongoing obligation that forces state action to protect the public interest. As trustee, the state is obligated to ensure the rights of the public in coastal areas are realized. These rights have traditionally included fishing, commerce, and navigation as mentioned above; still, individual states have chosen to expand their public rights in the coastal zone under the public trust doctrine.¹⁶⁸

The public trust doctrine as a "background principle" of state property law is an important factor for governments to consider when defending against regulatory takings claims. In essence, where the government is acting through its obligations as trustee to enforce public rights in the coastal zone, the actions related to that enforcement are grounded in background principles of state property law; therefore the actions cannot be seen as triggering a regulatory taking because the state is simply

¹⁶² *Id.* at 741 ("[T]he landowner, in dealing with surface water, is entitled to take only such steps as are reasonable, in light of all the circumstances of relative advantage to the actor and disadvantage to the adjoining landowners, as well as social utility. Ordinarily, the determination of such reasonableness is regarded as involving factual issues to be determined by the trier."); *See also* *Keys v. Romley*, 412 P.2d 529, 535-36 (Cal. 1966) (The court here describing the use of reasonableness via tort analysis as a means of resolving a problem of water between property owners rather than using property concepts to simply define the rights of the parties.).

¹⁶³ The presumption in this statement is that government has a primary role in *equitably* resolving interests that arise between all of its citizens. This includes, where practicable, protecting the property right interests of littoral landowners.

¹⁶⁴ Rolling easements where the easement right is purchased by the government is one that has a strong balance of interests. *See, Titus, supra* note 14.

¹⁶⁵ *Ill. Cent. R.R. Co. v. Illinois*, 146 U.S. 387 (1892).

¹⁶⁶ *Id.* at 452.

¹⁶⁷ *Id.* at 452-53.

¹⁶⁸ *See generally* *Craig, supra* note 40.

protecting the public rights that flow from the doctrine itself.¹⁶⁹ As some legal commentators have noted, "... the doctrine provides the most fundamental basis for responding to the threats of coastal armoring...",¹⁷⁰ because the doctrine reflects the role government plays in ensuring established public rights in the coastal zone. This is an important conceptual difference in how the state approaches coastal issues – the difference between enforcing *regulations* and enforcing *trustee obligations*. When the state acts as a trustee, its actions begin with a background principle of property law, thus all actions that follow can be linked back to the original trustee obligations. A state can argue it is simply carrying out non-discretionary trustee duties. Much like the arguments above where the state adopts the role of property owner to defend its actions, the public trust doctrine creates an important conceptual distinction between the state choosing to regulate private land, which can create regulatory takings issues, and the state simply engaging in its obligations as trustee on behalf of the public.

Use of the public trust doctrine as a defense varies by state depending primarily on the extent to which that state has developed its public trust doctrine interests.¹⁷¹ Some states have expanded their public trust rights to include access rights that "roll" with sea level rise,¹⁷² while others have included ecological values as important attributes of the public trust in coastal areas.¹⁷³ For example, if a government recognizes the rights of the public to access recreational opportunities including traditional beach use of the near shore, then it seems reasonable that same government can take steps to protect the maintenance of the sandy beach. This may include state nourishment projects to mitigate the erosion of sandy beaches, as well as defending against private landowners attempting to armor when armoring is clearly shown to aid in the destruction of public rights. Again, the important factor here is linking the state action to accepted public rights in the coastal area. For some states the public trust doctrine will serve as a more expansive tool against regulatory takings claims because of expanded public rights in the coastal zone. In other states the use of the public trust doctrine may be more limited because of limitations in the development of public trust doctrine rights.

The aforementioned takings analysis, relying heavily on the categorization of government conduct outlined previously in this article, will now be applied to adaptation approaches available in the State of Connecticut.

VI. Analysis of Adaptation Approaches in Connecticut

As noted in Section IV above, according to estimates of development intensity along the Connecticut coast somewhere between 50% and 80% of what may reasonably be defined as coastal land is in a developed to likely developed state.¹⁷⁴ However, development is not uniform along Connecticut's coast. A general trend shows greater development intensity along the western portion of

¹⁶⁹ *Lucas*, 505 U.S. 1003 (1992).

¹⁷⁰ Caldwell, *supra* note 35, at 552.

¹⁷¹ Craig, *supra* note 40.

¹⁷² TEX. NAT. RES. CODE ANN. §§ 61.001 – 61.254 (Texas Open Beach Act, which states in relevant part, "[I]f the public has acquired a right of use or easement to or over an area by prescription, dedication, or has retained a right by virtue of continuous right in the public, the public shall have the free and unrestricted right of ingress and egress to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico."); See also TEX. CONST. art. I, § 33(b). (Ensuring the public right to access the dry sand beach in the Texas State Constitution).

¹⁷³ Caldwell, *supra* note 35, at 552 ("there is a growing public recognition that one of the most important public uses of the tidelands...is the preservation of those lands in their natural states." (quoting Nat'l Audubon Soc'y v. Super. Ct., 658 P.2d 709, 718-19 (Cal. 1983)).

¹⁷⁴ Center for Land Use Education and Research, *supra* note 72 (indicating 51% development in 2002); Titus et al, *supra* note 14 (indicating approximately 80% of land developed within 1 meter of high water mark).

the state, with generally lower development intensity along the eastern coastal portion of the state.¹⁷⁵ Where development has occurred in greatest intensities, including urban centers along the western portion of the Connecticut coast, traditional armoring techniques such as seawalls are more prevalent.

The particular counties and locales identified in Part IV have a variety of adaptation strategies at their disposal. Some strategies may be applied more generally between counties regardless of existing conditions and other techniques that are more easily tailored to specific areas. Zoning overlay districts are an option for all seaside communities throughout Connecticut. The overlay district could be established to cover a defined coastal zone that is fluid, meaning property situated within the established definition of a coastal zone would be included in the overlay district. Should the coastal zone move upland over time due to climate change, upland properties would be absorbed into the overlay district if and when conditions surrounding the property met the definition. Once established, all properties existing within the overlay district would be subject to additional regulation based on their proximity to the coastal zone. Depending on the intensity of development in a particular area, the local government could use the various techniques described in this article (regulation, advancement of property rights, trustee obligations) and others (negotiation and reconciliation) to manage the adaptive process to sea level rise.

The use of an overlay district would highlight the special considerations that need to be applied to land use management within the district. A trustee obligation under the public trust doctrine may call for rolling easement-type regulations that ensure the preservation of the coastal resource to include protection of the public's right to access coastal attributes. While this may be done best at the state level, like in Texas,¹⁷⁶ it certainly can be explored by local planners as one way of beginning the process to alter property right expectations of private owners along the coast.¹⁷⁷ A rolling easement may represent the best compromise between public planning for sea level rise while accommodating existing private property right expectations regarding use of coastal property.¹⁷⁸

Connecticut can also take advantage of its rights as property owner in submerged lands. This can be advantageous to local planners who are looking for leverage in negotiating with private landowners in particular communities. The rights accruing to the public with sea level rise are not easily overcome by private landowner's claim of an unrestricted right to armor against rising seas. Understanding reasonableness standards would be the basis of judicial evaluation between property owners in such situations, the property right approach may yield a much better bargaining position for local governments, which can lead to important compromises between property owners that support adaptive policies more efficiently than other available options.

As indicated above, the local conditions will dominate the discussion of how government "best" proceeds in adaptive policies towards sea level rise. Existing conditions of heavy development and armoring limit policy choices. Less developed areas allow for greater options in proactively implementing adaptive policies. The key suggestion here for Connecticut, or any state government, is there are options in adaptive strategies that offer a high likelihood of avoiding regulatory takings claims. The key is to begin planning now so the adaptive strategies are proactive rather than entirely reactive; otherwise, retreat will likely be the only option left on the table.

¹⁷⁵ Center for Land Use Education and Research, *supra* note 72.

¹⁷⁶ TEX. NAT. RES. CODE ANN. § 61.011(a).

¹⁷⁷ Given Connecticut's preference for local land use planning, including coastal development (See Part IV *infra*), a set of state-initiated options through relevant agencies (DEEP and OSLIP) that create incentives for adoption by local municipalities may be the superior means of implementing this kind of coastal planning regulation.

¹⁷⁸ See Titus, *supra* note 7.

VII. Conclusion

It should be clear from this article that state and local governments have a variety of tools at their disposal to develop meaningful, proactive policies geared towards adapting to coastal climate change. Chief among these goals should be protecting the public against the impacts of sea level rise. To do this well, government must look at current land use policies along the coastal zone and consider what actions might best be applied to adapt to a dynamic and changing coastal landscape. Because coastal land use patterns are varied amongst the states and, further, because most land use decisions are made at the local governance level, the kinds of strategies employed to deal with coastal climate change will vary. Still, there are general lessons that can be learned about *how* government chooses to approach policy development in this area.

As suggested in this article, one commonality amongst all coastal states is the impact public policy will have on private landowners' expectations towards the use of land. When expectations of land use are changed at the governance level, constitutional questions arise; most prominently the Fifth Amendment prohibition in the U.S. Constitution on the public taking of private property without just compensation.

With a sense that proscriptive public policies can trigger regulatory takings claims, public agents would do well to consider the *role of government* when creating public policy prescriptions. Specifically, government should look to its roles in the coastal zone beyond that of regulator; government also has rights as both property owner and trustee of the public's rights in coastal zones. Developing policy solutions that incorporate these other roles of government can serve multiple purposes. Most directly, when acting in a non-regulatory role, government actions are less likely to be seen as impinging upon Fifth Amendment takings rights of private citizens. This alone can save government substantial costs in defending against lawsuits and other forms of legal posturing. More importantly, when government is acting in a non-regulatory fashion, it can approach the problem of sea level rise from a more equitable standpoint, allowing for the development of solutions that balance public and private interests. The example of government advancing its rights as a property owner and allowing for courts to use a reasonableness standard to create remedies between the property rights at issue was offered as one example; there are many others.

The reality of sea level rise creates a need for immediate and decisive action. Government can choose to be reactive to unfolding events, but this can lead to problematic outcomes for coastal communities, especially given the dynamic nature of climate change and the unpredictability of future rates of sea level rise. Proactive policies implemented locally need to internalize future costs of rising seas today, and this can include options such as armoring against the coming tide, retreating from it, or a combination of options. Existing conditions at the local level will impact these choices. For example, highly developed coastal areas of western Connecticut stand in contrast to the more undeveloped portions of eastern Connecticut. Because of the legacy issues involved with prior development (or a lack thereof), local planners have different conditions that create different options, some more limited than others.

In sum, the realities of existing conditions of coastal development need to be fully considered when creating policies towards rising seas. This article does not spell out what precisely should be done by local planners, but rather *how* planners should consider their *governmental role* in approaching solutions. Considering the roles of government beyond that of regulator will serve planners well as they deal with local conditions and adapt existing policies to deal with climate change, while avoiding regulatory takings claims to the extent practicable in the process.