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Center for Island Climate Adaptation and Policy

Climate Change and Regulatory Takings in Coastal Hawai'i

Douglas Codiga, Dennis Hwang, and Chris Delaunay

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Cover Photograph from University of Hawai'i Sea-Level Rise website http://www.soest.hawaii.edu/coasts/sealevel/. The blue line marks the one meter contour above present high tide. As sea level rises toward one meter above present later this century, communities located seaward of this line will experience growing exposure to coastal hazards, and new problems will arise such as poor drainage, urban wetlands, and daily tide inundation.

EXECUTIVE SUMMARY



The Center for Island Climate Adaptation and Policy ("ICAP") at the University of Hawai'i Sea Grant College Program has prepared this paper to examine the interactions among climate change, the regulation of shoreline development in Hawai'i, and Constitutional law regarding unpermitted takings of private property for public benefit. The use and development of coastal property in Hawai'i is governed by a complex array of laws and regulations addressing a range of concerns, from protecting human health and safety from life-threatening natural hazards to preserving public access and scenic view planes. A critical aspect of the interaction between climate change and the law is the requirement under the U.S. and Hawai'i Constitutions that the government compensate private property owners for unpermitted "takings" of their properties.

These two foundational issues converge on Hawai'i's shorelines, where government officials and the owners of coastal properties must grapple with the enforcement of regulations in the context of unprecedented changes to the climate and natural environment. Government officials must enforce existing laws and anticipate potential new laws as climate change continues to impact coastal areas. Owners of coastal properties, including valued homes and scenic lands, may resist or oppose government regulation of development activities on the grounds that enforcement violates the Constitutional takings prohibition. A better understanding of takings law and how it can be expected to interact with coastal development laws in Hawai'i may help government officials, private landowners, and members of the public to assess and evaluate the viability of potential takings claims and thereby minimize the time and expense associated with legal disputes.

The discussion is divided into three main sections. First, this paper describes several major climate change impacts, including sea-level rise, coastal erosion, rainfall intensity, and ocean acidification. Sea-level rise in particular is expected to increasingly impact coastal areas in Hawai'i, including inundation of low-lying roads and other developed areas, salt water intrusion into coastal ecosystems, and increased flooding and storm damage caused by heavy rainfall. Similarly, increased erosion may threaten shoreline homes and properties. Owners may seek to harden shorelines with permanent structures to protect their properties from natural hazards. Such structures often harm beaches and related coastal resources. Next, this paper provides an overview of takings law, with a focus on "regulatory takings" in coastal areas. Finally, this paper explores the application of takings law to several critical areas of coastal development regulation in Hawai'i, including shoreline setbacks, shoreline hardening, and flood control and mitigation.

Hawai'i's current regulatory regimes related to climate change impacts in coastal areas may generally be expected to withstand anticipated takings claims. By focusing on hazard reduction and mitigation, government actions may be better insulated from takings challenges brought by owners and developers of coastal properties in Hawai'i. Regulatory decisions rarely leave property completely valueless and therefore few regulatory decisions are likely to violate the *Lucas* "total loss" takings test. Enforcement of climate change-related regulations to prevent harm to public trust resources will likely withstand takings challenges if the court considers the resources to be part of Hawai'i's background principles of property law and nuisance.

Shoreline setbacks, which determine how close to the shoreline a structure may be built, play a critical role in establishing the balance between private use and enjoyment of valuable coastal properties and competing public interests in hazard mitigation and environmental protection. Takings claims may arise when the government does not allow a shoreline property owner to harden the shoreline to protect against rising sea levels and coastal erosion. If the government denies the owner's request for a variance, the owner may threaten to file a lawsuit alleging an unpermitted regulatory taking. Accordingly, this paper focuses primarily on setbacks and shoreline hardening.

This paper concludes by briefly examining related areas of the law that may assume increasing importance as climate change continues to affect shoreline areas in Hawai'i. These areas include the well-settled laws and regulations governing flood control and mitigation, the potential use of rolling easements in addition to shoreline setbacks to regulate development, and laws requiring the orderly removal of structures in shoreline areas, also known as managed retreat. In the future, both natural hazards from the changing climate and regulatory takings may figure prominently in Hawai'i's efforts to confront the challenges associated with global warming.

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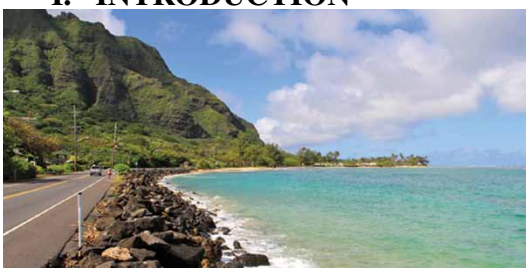

The use and development of coastal property in Hawai‘i is governed by a complex array of laws and regulations addressing a range of concerns, from protecting human health and safety from life-threatening natural hazards to preserving public access and scenic view planes. In Hawai‘i and around the world, government agencies tasked with enforcing such laws must increasingly consider climate change impacts, which continue to emerge as a significant consideration. These climate change impacts – including rising sea levels and increased erosion – demand a solid understanding of climate change science and relevant law and policy.

A critical aspect of the interaction between climate change and the law is the requirement under the U.S. and Hawai‘i Constitutions that the government compensate private property owners for unpermitted “takings” of their properties for public benefit. The Constitutional takings prohibition is considered a cornerstone of U.S. property law, as historic and venerated as climate change is new and the object of great interest and concern.

These two foundational issues converge on Hawai‘i’s shorelines, where government officials and the owners of cherished coastal properties must grapple with the enforcement of regulations in the context of unprecedented changes to the natural environment. Government officials must enforce existing laws and anticipate potential new laws as climate change continues to impact coastal areas. Owners of coastal properties, including homes and scenic lands, may resist or oppose government regulation of development activities on the grounds that enforcement violates Constitutional takings prohibitions. A better understanding of takings law and how it can be expected to interact with coastal development laws in Hawai‘i may help government officials, private landowners, and community members to assess and evaluate the viability of potential takings claims and thereby minimize the time and expense associated with legal disputes.

The purpose of this paper is therefore to provide a basic overview and examination of the interaction between takings law and Hawai‘i coastal development laws and regulations in the context of emerging climate change impacts. The discussion is divided into three main sections. First, this paper describes several major climate change impacts, including sea-level rise, coastal erosion, rainfall intensity, and ocean acidification. Sea-level rise in particular is expected to increasingly impact coastal areas in Hawai‘i, including inundation of low-lying roads and other developed areas, salt water intrusion into coastal ecosystems, and increased flooding and storm damage caused by heavy rainfall. Similarly, increased erosion may threaten shoreline homes and properties. Owners may seek to harden shorelines with permanent structures to protect their properties from natural hazards. Such structures often harm beaches and related coastal resources.

Next, this paper provides an overview of takings law, with a focus on “regulatory takings” in coastal areas. The purpose of this basic summary of the law is to provide background information to assist all parties in better understanding the steps in the legal analysis and critical facts for evaluating the potential merit of a takings claim. Courts regularly adjudicate takings claims in a wide variety of factual circumstances. This section sketches the basic parameters of the law and suggests how climate change-driven regulation in Hawai‘i may continue to interact with this fundamental legal doctrine.

Finally, this paper explores the application of takings law to several critical areas of coastal development regulation in Hawai‘i, including shoreline setbacks, shoreline hardening, and flood control and mitigation. Shoreline setbacks establish how close to the shoreline a structure may be built. Setbacks therefore play a critical role in establishing the balance between private use and enjoyment of valuable coastal properties and competing public interests in hazard mitigation and environmental protection. Because setbacks directly affect development, the application and enforcement of setback ordinances on private property may give rise to threatened or actual takings claims.

Similarly, takings claims may arise when the government does not allow a shoreline property owner to harden the shoreline to protect against rising sea levels and coastal erosion. It is well established that permanent structures designed to control erosion often adversely affect shoreline processes, including the size, shape, and location of prized beaches. As with shoreline setbacks, government regulation must strike a balance between private property rights and protection from natural hazards. This tension is reflected in laws and regulations that generally prohibit shoreline hardening but provide a legal process for the landowner to seek an exemption or variance. Faced with the destruction of economically valuable and often emotionally cherished coastal properties, owners often seek variances from government agencies to allow shoreline hardening. If the government denies the owner’s request for a variance, the owner may threaten, or indeed file, a lawsuit alleging an unpermitted regulatory taking.

This paper concludes by briefly examining related areas of the law that may assume increasing importance as climate change continues to affect shorelines in Hawai‘i. These areas include the well-settled laws and regulations governing flood control and mitigation, the potential use of rolling easements in addition to shoreline setbacks to regulate development, and laws requiring the orderly removal of structures in shoreline areas, also known as managed retreat. In the future, both natural hazards from the changing climate and regulatory takings may figure prominently in Hawai‘i’s efforts to confront the challenges associated with global warming.

II. CLIMATE CHANGE IMPACTS IN HAWAI'I



There is strong consensus in the international scientific community that climate change is occurring and that greenhouse gas emissions from human activities contribute to climate change.[1] The average temperatures of the Earth's surface and shallow ocean have increased over the past century, especially since the 1970s.[2] Globally, 2009 tied with several other years as the second warmest year on the instrumental record (since 1880).[3] The root cause is human activities: in February 2007, the United Nations Intergovernmental Panel on Climate Change ("IPCC") released its fourth assessment of the predicted impacts of global climate change ("4th Assessment")[4] which concluded that warming of the climate system is unequivocal and that most of the global average warming over the past 50 years is "very likely" (i.e., with a greater than 90 percent confidence level) due to the observed increase in anthropogenic or human-caused greenhouse gas concentrations.[5] Scientists attribute a number of environmental harms across the world to climate change, including increased land temperatures,[6] rising sea levels,[7] chronic coastal erosion,[8] decreased rainfall and stream flow,[9] increased rainfall intensity,[10] rising sea surface temperatures,[11] and ocean acidity.[12]

Global warming is influencing the climate in Hawai'i. Impacts include increased air temperature, decreased rainfall and stream flow, increased storm intensity, higher sea level and surface temperatures, and ocean acidification.[13] Consistent with the scientific consensus, the Hawai'i State Legislature has concluded that "climate change poses a serious threat to the economic well-being, public health, natural resources, and the environment of Hawai'i." In passing major climate change legislation in 2007 known as Act 234, the legislature found the potential adverse environmental effects of climate change may include rising sea levels resulting in the displacement of businesses and residences, damage to marine ecosystems and the natural environment, increased drought and loss of soil moisture, an increase in the spread of infectious diseases, and an increase in the severity of storms and extreme weather events.[14] The detrimental economic impacts include harm to tourism, agriculture, recreation, commercial fishing, and forestry.[15]

Sea-level rise is a particularly significant climate change impact for Hawai'i and the United States. The changing climate is causing global mean sea level to rise in two ways: warmer ocean waters take up greater volume,[16] and melting glaciers and ice fields[17] increase the aggregate quantity of water in the oceans.[18] According to the federal Global Change Research Program, if sea level rises 0.5 meters (20 inches) by 2100, there will be an estimated $23-170 billion in property damage to coastal properties throughout the United States.[19]

Sea level has risen in Hawai'i at approximately 0.6 inches per decade over the past century and probably longer.[20] Over the longer term, such as a century, sea-level rise of this nature can lead to chronic coastal erosion, coastal flooding, and drainage problems – all of which Hawai'i currently experiences. This long-term trend has increased the impact of short-term fluctuations on coastal sea level and has led to episodic flooding and erosion along the coast due to extreme tides.[21] The pattern of sea-level change is complex. For example, although the rate of global mean sea-level rise has approximately doubled since 1990, sea level actually declined in some large areas. This is due to the fact that winds and ocean currents affect sea level, and those are also changing.

Sea-level rise is expected to continue, and accelerate, for several centuries due to global warming, and research indicates that sea level may exceed three feet above the 1990 level by the end of the 21st century. Continued sea-level rise will increase marine inundation of coastal roads and communities and intensify salt

water intrusion in coastal wetlands and groundwater systems, taro lo‘i, or field ponds, and estuaries. Extreme tides presently cause drainage problems in developed areas and communities facing intensifying storm runoff and rising ocean waters will be subject to increased flooding.[22]

Sea-level rise in present-day Honolulu. *The Mapunapuna industrial district of Honolulu offers a glimpse of Hawai‘i’s sea-level future. When heavy rains fall during monthly high tides, portions of the Mapunapuna area flood because storm drains are backed up with high ocean water. Even absent a heavy rainfall event, the area floods with sea water at high tide as it surges from storm drains into the streets; marine fauna including young hammerhead sharks have been observed in pools created by such flooding.*

Coastal erosion, like sea-level rise, is also a significant concern. The Federal Emergency Management Agency estimates that by 2060 coastal erosion will threaten nearly 87,000 homes and other buildings in coastal areas in the United States.[23] It threatens buildings, roadways, public services, and community infrastructure. Coastal erosion remains a significant factor in managing the problem of high sea levels. Erosion is caused principally by waves, currents, and human impacts to sand availability. Sea-level rise accelerates and expands erosion, potentially impacting previously stable beaches. As mentioned above, chronic erosion in front of developed lands has historically led to seawall construction resulting in beach loss; approximately 25 percent of beaches on O‘ahu have been lost to seawall construction.[24] Losses are similar on other islands in Hawai‘i, where the average long-term rate of coastal erosion is about 1 foot per year. On Kaua‘i for example, 72 percent of beaches experience chronic erosion, which is accelerating on about one-fourth of such beaches.[25]

Several additional climate change impacts are relevant to understanding coastal regulation and takings law in Hawai‘i. Rainfall and stream discharge may be affected by global warming. Global warming has been identified as the cause of decreased atmospheric circulation in the tropical Pacific, although it is not yet clear how the Hawai‘i trade winds will change in the future and how future rainfall will respond to global warming. Studies of precipitation records in Hawai‘i confirm that rainfall in Hawai‘i has steadily declined about 15 percent over the past 20 years.[26] Global warming may also cause rain intensity to increase. Between 1958 and 2007, the amount of rain falling in the very heaviest downpours (defined as the heaviest one percent of all rainfall events) has increased approximately 12 percent in Hawai‘i. Heavy rainfall can trigger a domino effect of other impacts including flash flooding, mudslides and debris flows, road and business closure, infrastructure damage, and loss of public services to isolated communities.[27] Global warming is also causing air and sea surface temperatures to rise, and rising carbon dioxide concentrations in the atmosphere result in ocean acidification.[28]

III. REGULATORY TAKINGS LAW



Climate change impacts necessitate government action both to reduce greenhouse gas emissions and adapt to a changing world. In Hawai‘i and other coastal U.S. states, government action commonly includes regulation of coastal development. Existing property laws, however, may pose limits to regulation of coastal development of private property by government agencies seeking to address climate change impacts. This paper focuses on one such limit: the Constitutional prohibition against takings of private property for public benefit without just compensation.

This prohibition is found in the "Takings Clause" of the Fifth Amendment to the U.S. Constitution, which states that property shall not "be taken for public use, without just compensation."[29] The Hawai‘i State Constitution similarly provides that "private property shall not be taken or damaged for public use without just compensation."[30] The takings clause does not prohibit government from taking private property; it simply requires that property owners be compensated for the value of the property taken. According to the U.S. Supreme Court, the takings clause "was designed to bar government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole."[31] The threat of required compensation, however, may thwart or delay government action including enforcement of restrictions on development. A basic familiarity with the law of takings will therefore aid in understanding and evaluating takings claims and defenses arising out of government regulation of coastal development.

Although this paper focuses on "regulatory takings," or takings claims based upon the implementation of government regulations, takings law also encompasses government condemnation of private property by eminent domain for a highway, public works project, or other public purpose. Similarly, government action may constitute a taking where the government requires or authorizes property to be physically occupied or invaded for a public purpose, such as causing property to be flooded or allowing the installation of cable television equipment.[32] Although government actions involving eminent domain and physical invasions differ from regulatory takings, and thus fall outside the scope of this paper, they are essential aspects of takings law and may play a role in future climate change-related regulation of coastal development in Hawai‘i.

When government regulation appears to go "too far," private property owners may threaten or take legal action based on claims that denial of a permit, imposition of a permit condition, or similar development restrictions constitute a regulatory taking. Such claims typically allege government action reduces allowable uses, diminishes private property values, or unfairly requires the owner to provide a public benefit. As the U.S. Supreme Court recognized long ago, "government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law . . . ."[33] At the same time, however, "while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking."[34]

The U.S. Supreme Court has developed several tests to determine when a regulation goes "too far" and a regulatory taking has occurred.[35] For purposes of this paper, two tests are relevant. The first is the "total loss of all beneficial use" test set forth in the Court's seminal *Lucas v. South Carolina Coastal Council*

decision. The second test, which is more important for purposes of this paper, is the three-factor test set forth in the Court's *Penn Central* decision.[37]

Parties considering takings claims should bear in mind that a threshold for a regulatory takings claim is whether the claim is "ripe" for review by a court. It is well established that courts may adjudicate only actual legal disputes and must refrain from adjudicating merely potential claims; legal claims must be ready, or "ripe," for a court decision. Generally, a claim is not ripe for review until a government entity has applied the disputed regulation to the property at issue and reached a final decision. In addition, the party bringing the legal claim must have completed any available appeals process or variance procedure, including any procedure for seeking compensation from the agency for the alleged taking. If the party has not appealed the decision or sought a variance or compensation, the claim is unlikely to be ripe for review by a court.[38]

A. *Lucas* "Total Loss" Test

Assuming a claim is ripe, the U.S. Supreme Court has established a categorical rule under which government regulation is an unpermitted taking if it denies all economically beneficial or productive use of the property.[39] In such circumstances, the court may conclude the private property owner has been "called upon to sacrifice all economically beneficial uses in the name of the common good."[40] In the *Lucas* case, the South Carolina legislature enacted a Beachfront Management Act which prevented plaintiff Lucas from erecting any permanent habitable structures on two residential oceanfront lots. Lucas challenged the state law to the U.S. Supreme Court, which held that an action that denied "all economically beneficial or productive use of the land" was a "categorical" taking that requires compensation to the landowner.[41]

The *Lucas* "total loss" does not apply, however, if the regulated activity is already prohibited or constrained by "background principles" of the state's common law regarding property and nuisance. The Court provided two examples of nuisance-like activities which a government could properly prohibit even if no economically beneficial uses of the property remained: operating a nuclear power plant located on an earthquake fault line, and operating a landfill in a manner that resulted in flooding on neighboring properties. As a practical matter, regulatory decisions rarely leave property deprived of all economically beneficial use and therefore few regulatory actions by government officials violate the *Lucas* "total loss" takings test.

B. *Penn Central* Three-Part Test

More important for regulatory takings claims than the *Lucas* "total loss" test is the three-part test set forth by the U.S. Supreme Court in its landmark *Penn Central* decision. In that decision, the Court established the principal guidelines for resolving regulatory takings claims that do not fall within the physical takings or *Lucas* rules. The Court set forth three factors to determine whether a "partial" regulatory taking has occurred: (1) the economic impact of the regulation; (2) the character of the government action; and (3) the degree of interference with the owner's "reasonable investment-backed expectations."

1. **First Factor: Economic Impact of the Regulation.**
   The first factor, concerning the economic impact of the regulation, requires the regulation to have a relatively severe economic impact for a taking to be found. The court must weigh the public interest in the government action against the interest of the private owner. The court must also consider whether the individual property owner may share in the benefits of the government's exercise of the police power. Assuming the regulation has a strong public purpose, such as hazard mitigation, the court may conclude that the restriction's public benefits exceed the costs to private property owners. This is especially true if the owner shares in the benefits.

The* Penn Central *"Economic Impact" Factor in Other States. *Decisions from other jurisdictions illustrate how a court may evaluate the economic impact of a regulation to deny a regulatory taking claim.*

For example, a Michigan court rejected plaintiff's claim that denial of its request for a permit to fill a wetland on its property constituted a taking. The court found that "a reduction in the value of the regulated property is insufficient, standing alone, to establish a compensable regulatory taking," and affirmed a relatively high threshold for determination of an allowable economic impact on a property by a regulatory regime. Although the regulation caused an estimated 60 percent reduction in property value, the court opined that a reduction in value in the range of 90 percent would be necessary to establish a compensable taking. K&K Construction, Inc. v. Dept. of Environmental Quality, *705 N.W. 2nd 365, 380-81 (2005).*

In another example, a North Dakota court evaluated the economic impact on a property by comparing its fair market value immediately before a government moratorium was implemented to the market value immediately after the action was terminated and concluded no taking had occurred. The court found that the economic impact on the land did not constitute a taking because the property owner sold more lots at higher prices after the moratorium was lifted than before its termination. Wild Rice River Estates v. City of Fargo*, 705, N.W. 2nd 850, 858 (2005).*

2. Second Factor: Character of the Government Action.

Under this factor, a court must evaluate the government purpose or "character" of the action, including whether it is a physical or regulatory taking. Generally, there is a hierarchy of government purposes, ranging from protecting public health and safety to promoting scenic views and aesthetics. As the U.S. Supreme Court stated in *First English v. Los Angeles*, "If there is a hierarchy of interests the police power serves – and both logic and prior cases suggest there is – then the preservation of life must rank at the top."[42] Preventing loss of life and property due to flooding or other natural hazards carries more weight than protecting aesthetic values.[43]

Similarly, in its landmark *Penn Central* decision, the U.S. Supreme Court carefully scrutinized the character of the government action at issue and found it sufficient to withstand a takings claim. In that case, the New York City Council concluded that the preservation of historic city landmarks by means of its historic preservation law benefited "all New York citizens and all structures, both economically and by improving the quality of life in the city as a whole."[44] The owners of the historic Pennsylvania Station building sued, claiming the government restrictions prevented them from developing a high-rise in the air space above the historic station. The Court concluded that denial of construction of a high-rise in the air space above the building was not a taking in part because the building owners were sufficiently compensated through the various public benefits arising from the regulation. In addition, the court assessed the economic impact of the landmark protection law in terms of the owner's entire property interest, which included other parcels and other possible uses of the property.[45]

Character of government action and sea-level rise. *In a case involving sea-level rise, a court found no taking where the regulation at issue was firmly grounded in protecting public health and safety. The property owner claimed a zoning board effectuated a taking of its lot by not allowing residential construction. The regulation was designed to protect coastal areas and public health and safety and reduce the risk to people and property from "extreme high tides" and "rising sea level." Before ruling, the court considered expert testimony that during a large storm a building on the lot at issue "could certainly be picked up off its foundation" and be carried away, "potentially damaging" neighboring properties. As a result, the court found a reasonable relationship between the regulation prohibiting residential development on the lot and a legitimate state interest.* Gove v. Zoning Board of Appeals of Chatham*, 831 N.E. 2nd 865, 871 (2005).*

3. **Third Factor: Reasonable Investment-Backed Expectations.**
   The reasonable investment-backed expectations factor generally relates to whether an owner knew or should have known that laws or regulations would affect the property's value at the time the owner acquired the property. For example, an owner of tidal wetlands who is aware of the public trust doctrine would not have a reasonable expectation of filling such wetlands for residential purposes. Government prohibition of such uses therefore generally would not constitute a taking. Expectations are "investment-backed" if the property owner has invested financial and other resources in property development plans. Thus, the timing of the government action relative to the stage of development of the property is important. A court is less likely to conclude government regulation of coastal development interferes with the property owner's expectations if the regulations are imposed prior to or early in the development process. The amount of economic investment, and the importance accorded to the owner's investment-backed expectations, both increase as a property is developed. The later in the development process government imposes regulations, the more likely a court will find interference with the owner's investment-backed expectations.

C. Takings and the Public Trust Doctrine

Governmental regulatory actions involving public trust lands may have additional protection from takings claims in the form of the public trust doctrine. Under the public trust doctrine, as set forth in Article VI, section 1 of the Hawai'i State Constitution, "all public natural resources are held in trust by the state for the benefit of the people." In Hawai'i, beaches are public trust resources.[46] The public trust doctrine therefore encompasses loss of beaches and harm to beach systems from coastal development.[47]

Enforcement of climate change-related regulations to prevent harm to public trust resources will likely withstand takings challenges if the court considers the resources to be part of Hawai'i's background principles of property law and nuisance. As mentioned above, under the *Lucas* decision there is no taking where "background principles of nuisance and property law" – such as the public trust doctrine – prohibit the uses that the state regulates.[48] In such instances, no taking may be found even if the regulation leaves a property with no economically beneficial use because the regulation or restriction "inheres in the title itself, [and] in the restrictions that background principles of the state's law of property and nuisance already placed upon land ownership."[49] State ownership rights, the public trust doctrine, and "background principles" of property law under *Lucas* generally protect state regulations or permit actions on trust lands against a takings claim. The state's public trust interest is considered a dominant property interest because the state either owns shorelines and submerged lands or has conveyed them to private parties subject to a public trust easement. Like the public trust doctrine, custom (including traditional and customary Hawaiian practices) may also be considered a background principle and play a role similar in takings claims.

***Court cases involving takings and the public trust doctrine**. In 2009, the Hawai'i Intermediate Court of Appeals held that the public trust doctrine diminished any expectation that oceanfront owners in Hawai'i had and may have in future accretions to their property.* Maunalua Bay Beach Ohana 28 v. State of Hawai'i*, 2009 Haw. App. LEXIS 807, *64 (2009).*

The denial of a fill permit was upheld in South Carolina because public trust tidelands "effected a restriction on [the owner's] property rights inherent in the ownership of property bordering tidal waters . . . [and] . . . ownership rights do not include the right to backfill or place bulkheads on public trust land and the state need not compensate him for the denial of permits to do what he cannot otherwise do." McQueen v. South Carolina Coastal Council*, 580 S.E. 2d 116, 119-20 (S.C. 2003).*

In California, dredging privately-owned tidelands to improve navigation was not held a taking because the city, as the state's trustee, retained a public trust easement over tidelands which enabled it "to make improvements and changes in the administration of this easement without the exercise of eminent domain." Newcomb v. City of Newport Beach*, 7 Cal. 2d 393, 403 (1936).*

Similarly, in Washington, the state's denial of a permit to build homes on platforms and pilings in tidal waters was held not a taking because the public trust doctrine precluded shoreline residential development. The United States Court of Appeals for the Ninth Circuit held that public trust doctrine may be a "background principle" of a state's common law which may result in a government avoiding liability from a regulatory takings claim even if all economically beneficial use is taken. Esplanade Properties, LLC v. City of Seattle, *307 F.3d 978, 985 (9th Cir. 2002).*

In summary, regulatory takings claims based on government regulation of coastal development in Hawai'i to address climate change impacts will turn on a court's evaluation of the foregoing three *Penn Central* factors – but only as those factors are applied to a specific property and the specific facts surrounding development of that property. As the U.S. Supreme Court noted in the *Penn Central* decision, "we have frequently observed that whether a particular restriction will be rendered invalid by the government's failure to pay for any losses proximately caused by it depends largely upon the particular circumstances of that case."[50] Although no definitive conclusions about the potential viability of takings claims may be drawn absent the specific facts of a specific case, the following discussion suggests Hawai'i's current regulatory regimes related to climate change impacts in coastal areas may generally be expected to withstand anticipated takings claims.

IV. TAKINGS ANALYSES



A. Hazard-Based Planning and Regulating to Avoid Regulatory Takings

Takings law and climate change-related regulation of coastal development in Hawai‘i should be understood in light of the paramount importance of hazard-based planning and regulating to avoid or minimize takings claims. Hazard-based planning focuses less on environmental or aesthetic concerns and more on hazard reduction and the protection of public health and safety. By focusing on hazard reduction and mitigation as described in this section, government actions may be better insulated from takings challenges brought by owners and developers of coastal properties in Hawai‘i.

The national and international trend is to address all hazards at one time by using a multi-hazard approach.[51] When coastal development is properly designed and sited, it is generally protected from anticipated and known hazards.[52] Many design and mitigation measures for one hazard will reduce the risk from other hazards. For example, elevating structures above a certain water level, typically the 100-year flood event, will reduce the risk to life and property from tropical storms, tsunami inundation, and hurricane storm surge. A multi-hazard approach may also accommodate changing coastal conditions brought about by sea-level rise. Properties built to flood zone standards will be protected from relatively more intense wave action and similar coastal forces, as well as from later becoming encompassed by the flood zone. Further specific recommendations include the following:

- Use setbacks in a manner that leaves some economically viable use of the land. For small lots, ensure that “minimum buildable areas” are employed and for larger lots use scientifically-based setbacks, such as those used on Kaua‘i.[53]

- Plan for hazards as early as possible in the development process. Study data and information to assess natural hazards.[54] Site buildings early in the development process (i.e., in the community planning, zoning, and early subdivision stages) when the owner’s investment-backed expectations are low. Permits acquisition generally equates to significant investment-backed expectations.

- Regulations focused on hazard mitigation should be characterized accordingly. As explained above, under the three-part *Penn Central* test, the character of the government action is important in takings claims. A primary purpose of shoreline setbacks, for example, is to address coastal hazards that threaten human health and safety and property damage.

- Agencies should consider using existing authority to deny subdivision approval if future residents will be threatened by coastal hazards. Subdivision rules can be amended to strengthen or add provisions requiring hazard assessment prior to subdivision approval. Such rules should include a variance procedure allowing variances to be sought as part of the regulatory process.

- All involved should bear in mind that government agencies face potential liability not only for takings claims but also for allowing buildings to be placed in known hazard zones, such as flood zones.[55]

B. Shoreline Setbacks

The use of shoreline setbacks to regulate coastal development will remain an important regulatory tool for addressing sea-level rise and other climate change impacts in Hawai‘i.[56] Shoreline setbacks establish the closest distance to the shoreline that development is permitted and are established under state and county law in Hawai‘i. Article VIII of the Hawai‘i State Constitution grants to Hawai‘i County, the City and County of Honolulu, Kaua‘i County, and Maui County certain state law powers. These powers include authority to regulate shoreline setbacks under sections 205A-43 and 205A-45, Hawai‘i Revised Statutes ("HRS") of the Hawai‘i Coastal Zone Management law. HRS § 205A-43 provides that setbacks along shorelines should not be "less than twenty feet and not more than forty feet inland from the shoreline." Under HRS § 205A-45, counties may require shoreline setback lines to be greater than the distances established under HRS § 205A-43.

All counties have exercised the right under HRS § 205A-45 to expand their setbacks based upon the determination that the 20-40 foot setback distances fail to provide adequate protection.[57] In many jurisdictions, when a structure is within 20 feet of an eroding shoreline, it is considered an emergency situation.[58]

In 2008, the County of Kaua‘i adopted a shoreline setback that is considered one of the most scientifically-based shoreline setbacks in the nation. The setback is determined based upon an annual average shoreline erosion rate times a planning period of 70 years, plus a buffer of 40 feet. The 70-year period is based on an engineering study of the life expectancy of coastal structures considering building materials, maintenance, water damage, habitability and other factors.[59] The planning period for structures 5,000 square feet or greater is 100 years because such structures are often constructed with stone or similar durable materials.

Other counties have also established shoreline setbacks. For Hawai‘i County, the shoreline setback is now at the minimum 40 feet; in many cases the planning department has imposed a much greater setback. On O‘ahu, the setback is 40 feet from the shoreline, except in the case of small lots for which the setback may be as little as 20 feet. For new subdivisions, the setback is 60 feet. In 2003, and in later amendments to its setback regulation, Maui recognized the importance of creating a more scientifically-based setback and established a formula based on an annual average shoreline erosion rate times a planning period of 50 years, plus a buffer of 25 feet.[60]

To date, it appears there has been no federal or state court decision awarding a property owner compensation based upon a taking resulting from the imposition of shoreline setback laws or regulations in Hawai‘i. Of course, enforcement of setback provisions may in the future give rise to takings claims, particularly if the setback results in the owner being unable to construct any buildings on the entire parcel. The Maui and Kaua‘i setback schemes, for example, contain categorical minimum setbacks that a property owner could conceivably challenge as total regulatory takings when applied to extremely shallow lots. For the reasons given above, setbacks are more likely to withstand a taking challenge if they are employed to reduce the risk of hazards such as property damage from inundation. This may be especially true where the setback abates the potential nuisance from high wave and flooding events causing oceanfront structures to dislodge and damage other property. Setbacks that allow no development and are based on preventing beach loss due to erosion may be more vulnerable to takings claims. In ruling on such a claim, however, the court would be expected to consider whether loss of the beach, which is a public trust asset, is a sufficient nuisance to allow no development of the property.

Brescia *case on Kaua'i. Although not a takings case, landowners brought a claim similar to a takings claim against the County of Kaua'i in* Brescia v. Planning Commission*, 2007 Haw. LEXIS 251 (Aug. 2007).*

This case is relevant insofar as it clarifies the Hawai'i Supreme Court's view as to what reasonable use of coastal property entails. In Brescia, *the subdivision code and county setbacks together allowed the owner to construct only a triangle-shaped house, albeit of over 4,000 square feet. The landowner sought a variance, arguing he was entitled to one because he had lost "reasonable use" of his property.*

The Hawai'i Supreme Court disagreed and overturned the lower court's decision granting the variance. The Court was comfortable allowing a coastal landowner to build on only a portion of the lot. This ruling suggests courts may decide the reasonable investment-backed expectation inquiry under the third Penn Central *factor in takings cases in a similar manner.*

C. Shoreline Hardening

Like setbacks, prohibitions on shoreline hardening may give rise to takings claims as government agencies regulate in part to address climate change impacts along Hawai'i's shorelines. Shoreline hardening, or building permanent barriers to prevent tides and waves from eroding land, may in some instances be the only viable option short of physical relocation or allowing homes and structures to fall into the sea.[61] Although valuable homes and structures may be saved, hardening on chronically receding coastlines often causes the disappearance of beaches by preventing beaches from naturally migrating inland. Hardening may also fail to protect land from erosion if the hardened shoreline causes the seaward profile to steepen, thus allowing larger waves to come into contact with the shoreline.[62]

State law prohibits shoreline hardening unless the landowner obtains a variance or a determination by the relevant government agency that the structure meets one of the exceptions under Chapter 205A, HRS. Under HRS § 205A-44, "structures are prohibited in the shoreline area without a variance." The term "structures" includes revetments, seawalls, groins, and other shoreline hardening devices and structures. Certain shoreline hardening structures may be allowed based upon the date of construction or installation, use for aquaculture, or shoreline recreation. Such allowed structures, however, must generally be shown to result in little or no interference with natural shoreline processes. If structures used for shoreline hardening do not qualify under HRS § 205A-44, a variance must be obtained pursuant to HRS § 205A-46. Under HRS § 205A-46, variances may not be granted for structures unless "appropriate conditions are imposed." Such conditions may relate to the requirement that shoreline hardening structures "minimize risk of adverse impacts on beach processes."

***Shoreline hardening rules in the Counties**. Although Chapter 205A provides the framework for County regulation of shoreline hardening, all counties in Hawai'i are responsible for regulating county land that is landward of the certified shoreline. This includes shoreline hardening structures.*

Under section 23-1.8 of the Revised Ordinances of Honolulu, for example, the City and County of Honolulu may deny a property owner's request for a variance to build a shoreline hardening structure unless the structure is minor and does not interfere significantly with natural processes. Section 23-1.2 of the City and County of Honolulu Revised Ordinances of Honolulu specifically requires the County to "protect and preserve the natural shoreline, especially sandy beaches."

Maui County similarly prohibits shoreline hardening structures or activities, unless they are necessary for beach or dune nourishment activities and landscape planting and irrigation purposes. The Maui Planning Commission may grant a variance to a property owner regarding a legal habitable structure or public infrastructure, however, as long as the structure at risk of damage from coastal erosion poses a danger to the health, safety and welfare of the public, and the proposed hardening is the best shoreline management option in accordance with relevant state policy on shoreline hardening.

In 2009, Chapter 8 of the Kaua'i County Code was amended and section 8-27.7 now states that the "construction of any erosion-control or shoreline hardening structure or activity shall not to be allowed to protect the permitted structure or activity during its life, with the exception of approved beach or dune nourishment fill activities, and landscape planting and irrigation." Section 8-27.7 was further amended to include the following language: "All new structures or activities shall not: (i) adversely affect beach processes, (ii) artificially fix the shoreline, (iii) interfere with public access or public views to and along the shoreline, (iv) impede the natural processes and/or movement of the shoreline and/or sand dunes, or (v) alter the grade of the shoreline setback area . . . All new structures shall be consistent with the purposes of this article and HRS Chapter 205A, as amended."

Finally, Hawai'i County is unlikely to permit property owners to build a structure related to shoreline hardening within the shoreline area unless the following applies: a permitted structure through issuance of variance from the Planning Commission; completed by or activities which commenced prior to June 22, 1970; a structure or activity that has received a building permit, State of Hawai'i Department of Land and Natural Resources approval, Special Management Area Use Permit/approval and/or a shoreline setback variance prior to June 16, 1989; structures and activities necessary for or ancillary to continuation of existing agriculture or aquaculture activity in the shoreline setback area prior to June 16, 1989; or work being done consists of maintenance, repair, reconstruction, and minor additions to or alterations of legal, publicly-owned boating, maritime, or water sports recreational facilities, which result in little or no interference with natural shoreline processes.

To date, it appears there has been no federal or state court decision awarding a property owner compensation based upon a taking resulting from the imposition of shoreline hardening laws or regulations in Hawai'i. In general, takings claims based on a government agency's denial of a permit for shoreline hardening may have difficulty prevailing for several reasons. First, Hawai'i's beaches are a public trust resource and shoreline hardening leads to the loss and destruction of beaches. As noted previously, the public trust doctrine is a background common law principle which may limit government liability for regulatory takings claims even if the property loses all economically beneficial use. It follows that the state, as trustee of public trust resources, is entitled to prevent harm to the beach by not permitting shoreline hardening.

It is also unlikely a court will find denial of a shoreline hardening permit to be an unpermitted taking insofar as property rights have developed under the common law based on the understanding that the shoreline boundary migrates or changes due to natural forces causing erosion and accretion. Although the Hawai'i Intermediate Court of Appeals has recently held that ownership of future accreted land rests with the state,[63] littoral owners nonetheless have the expectation that the shoreline will migrate and is unstable. This fact has been the basis upon which courts have found no property interest in permits granted for seawalls or revetments.

Denial of a shoreline hardening permit is also likely not a taking insofar as shoreline hardening structures may contribute to or increase coastal hazards. The structures may transfer erosion to nearby parcels, sever sand supplies to protective beaches, and allow greater wave impacts by steepening offshore beach profiles.[64] As explained above, courts give great weight to the protection of life and property and may be expected to support regulation that reduces potential threats to neighboring properties in shoreline areas. Although hardening structures may reduce the risk from slow, chronic erosion, the shoreline may be subject to larger waves due to the loss of the protective beach, threatening both the property owner and the beach-going public.

On Hawai‘i’s shorelines, however, non-legal considerations may sometimes trump law and policy and this should be kept in mind in evaluating potential takings claims. Shoreline homeowners often believe they are in a desperate situation when faced with the encroaching sea and threatening waves. A common response is to hastily and illegally armor the shoreline and seek after-the-fact permits. The emotional and financial ties of owners to prized shoreline properties may influence variance determinations by government agencies. It may be to the benefit of all involved, however, if threatened takings claims by such owners are properly understood and evaluated in accordance with the established law of regulatory takings as summarized in this paper.

Beard *shoreline hardening case*. *In South Carolina, a property owner sought a permit to construct a bulkhead on beachfront property. The government authority denied the permit on grounds that the bulkhead would have violated policies of the state’s Coastal Zone Management Act. The South Carolina court upheld the permit denial, and rejected the property owner’s claim that denial of the permit constituted a taking, because the regulation prevented a serious public harm.* Beard v. South Carolina Coastal Council*, 304 S.C. 205 (1991).*

D. Flood Control and Mitigation, Rolling Easements, and Managed Retreat

To date, it appears there has been no federal or state court decision awarding a property owner compensation based upon a taking resulting from flood control and mitigation laws and regulations in Hawai‘i. In other jurisdictions, flood regulations have withstood regulatory taking challenges because the regulations prevented a public danger to the community or prevented development on lots likely to be damaged or destroyed by flooding. Flood control or mitigation has traditionally been addressed at the construction stage rather than the siting stage, because property owners may qualify for flood insurance by following construction standards for flood mitigation (including elevating structures above the base flood elevation).[65] Consistent with the paramount importance of hazard-based planning and regulating, however, flood hazards should be addressed at the siting rather than construction stage of development.[66]

Flood control and mitigation cases. *A New Jersey landowner brought an inverse condemnation action against the state claiming that the state regulations “severely restricted construction in a river floodway,” thereby constituting a regulatory taking. The court found that the regulations “prevented a public danger to the community.” Thus, no compensable taking was found.* Mansoldo v. State of New Jersey*, 898 A.2d 1018 (2006).*

A North Dakota landowner brought claims against the City of Fargo for inverse condemnation relating to the city’s 21-month moratorium on building permits in floodways while awaiting the Federal Emergency Management Agency’s final determination on locations identified on flood plain maps. The moratorium was designed to protect prospective buyers from building on river lots that are likely to be “damaged or destroyed” by flooding, based on information obtained from floods that occurred in 1997. The court found the moratorium bore “a reasonable relationship to a legitimate governmental purpose” and held the property owner was not entitled to compensation. Wild Rice River Estates v. City of Fargo, *705 N.W. 2d 850. (2005).*

Rolling easements and managed retreat are potential future regulatory approaches to addressing climate change impacts in Hawai‘i. Although this paper does not include a takings analysis of these approaches, basic descriptions may aid an understanding of regulatory takings claims and coastal development in Hawai‘i.

The rolling easement concept shares a relationship with shoreline setback regulatory schemes. It is unclear whether and to what extent they may play a role in addressing climate change impacts in Hawai‘i insofar as the counties' shoreline setbacks continue to address such concerns.[67] Under the rolling easement concept, the landward migration of the coastline cannot be arrested by hardening such as with seawalls or revetments. Property owners are instructed that in the event structures are threatened by sea-level rise, the government will not permit shoreline hardening. Once shoreline migrates inland and the property line is landward of the structure, the owner is required to remove the structure.[68]

Although a rolling easement allows use of the property and fosters economic activity from development, it increases hazard risks by allowing development that is vulnerable to hurricanes, tsunamis, episodic subsidence, coastal erosion, and even minor storms. Even though property owners may avoid harm from slow, steady erosion, sudden events such as high surf can leave structures vulnerable to damage. Rolling easements also suffer the disadvantage of the same non-legal considerations associated with shoreline hardening: faced with the destruction of economically valuable and often emotionally cherished coastal homes, private property owners may resist destruction or forced relocation of such structures and threaten or file takings lawsuits.

Finally, managed retreat is an innovative regulatory policy promoting adaptation to climate change impacts and is implemented in part by aggressively avoiding anticipated harm. Managed retreat, which has not been widely adopted in Hawai‘i to date, may include the relocation of existing buildings and infrastructure, restrictions on reconstruction of buildings damaged by natural processes, and similar legal measures to regulate coastal development in response to sea-level rise. In the context of coastal erosion, managed retreat allows an area that was not previously exposed to flooding by the sea to become flooded by removing coastal barriers or prohibiting shoreline hardening. This process is sometimes undertaken in low-lying estuarine areas and often involves flooding of land that has at some point in the past been claimed from the sea.

Managed retreat is often a response to sea-level rise, which may be exacerbated by local subsidence of the land surface. Sediment flow may be restored, beaches naturally replenished, and balance to coastline processes restored as a result of managed retreat. A certain amount of land will inevitably be lost in this process while beaches are being built up resulting in settlements, farmland and other property being destroyed. Because of this, managed retreat may trigger takings claims. Intertidal sites are often a rich archaeological resource and the loss of heritage is a factor to weigh in managed retreat projects as well. One area of further investigation is how managed retreat could be implemented after a large hazard event such as high surf inundation, a tsunami or hurricane storm surge.

Ultimately, additional research and monitoring may ascertain the upper limits of sea-level rise in Hawai‘i. A comprehensive assessment of climate change effects on Hawai‘i's coastal resources is a vital first step to ensure adequate preparation and increased adaptive capacity for the state. This assessment will focus necessary research and strengthen our planning toward more resilient shoreline and coastal communities. ICAP encourages all stakeholders to continue in earnest the process of building resilience well in advance of dangerous changes to climate.

V. CONCLUSION



Climate change is presently impacting Hawai‘i’s shoreline areas and such impacts are expected to become more severe in the future. Government regulatory action, such as shoreline setbacks and hardening policies, will form an integral part of the community’s response to the threats posed by climate change. The inherent tension between such regulatory action and private property rights, as exemplified by the Constitutional prohibition against unpermitted takings, however, may intensify assuming the impacts from climate change demand stronger and more comprehensive regulation. Threatened or actual takings claims may continue to influence the application and enforcement of coastal development regulations in this dynamic and unfolding context. A basic understanding of the law of regulatory takings may aid government officials, private property owners, and members of the public in understanding and evaluating takings claims in the context of climate change. This enhanced knowledge and awareness will contribute to the ability to adapt to future changes in Hawai‘i’s important and valuable shoreline areas.

Priorities for Further Research

The Center for Island Climate Adaptation and Policy has identified the following priorities for further research:

- Examine the concept of managed retreat to respond to sea-level rise with the identification of all potential strategies, analyses of legal issues, determination of political challenges and realities, and recommendations for implementation.

- Apply the Bruun Rule and Davidson-Arnott Rule to Hawai‘i beaches in order to define shoreline zones that are susceptible to sea-level rise. These results can be compared with the projected zones based on historical shoreline change rates, as well as to zones mapped using topographic data (blue-line type) to outline sea-level rise vulnerability using multiple criteria.

- Determine how sea-level rise will impact flooding in Hawai‘i through coastal inundation or raised water tables and determine what possibilities exist to mitigate flood impacts through various programs including the National Flood Insurance Program.

- Investigate the concept of marine spatial planning. In this approach some coastal areas are identified and zoned for specific land uses (shoreline armoring in an urban or industrial area for example) while other high priority preservation areas or “legacy beaches” are zoned with restrictions for armoring.

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[25]*Id* at 3-4.

[26]*Id.*

[27]*Id.*

[28]*Id.*

[29]U.S. Const. amend. V.

[30]Haw. Const. art. I § 20.

[31]Armstrong v. United States, 364 U.S. 40, 49 (1960).

[32]For example, in *Loretto v. Teleprompter Manhattan CAV Corp.,* 458 U.S. 419, 441 (1982), the U.S. Supreme Court determined that a New York law requiring property owners to allow television cable companies to install cable facilities on their apartment buildings was a taking, even though such facilities only occupied about one and a half cubic feet of the property at issue. Such government action may constitute a taking regardless of how minimal the intrusion or how important the government interest at stake, and is considered a *per se* or categorical taking.

[33]Pennsylvania Coal Co. v. Mahon, 260 U.S. 393, 413 (1922).
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[40]*Id*. at 1019.
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[53]Chapter 8, Article 27 of the Kaua'i County Code 1987, as amended, provides for a minimum buildable footprint of 2,100 square feet. For larger lots with a depth of more than 160 feet, the setback is based on an average annual coastal erosion rate times 70 years plus 40 feet for a buffer. For structures with a building footprint of 5,000 square feet, the planning period is increased from 70 years to 100 years.
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