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Keith W. Rizzardi

St. Thomas University School of Law

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Rising Seas, Receding Ethics? Why Real Estate Professionals Should Seek the Moral High Ground

Keith W. Rizzardi*

Abstract

Despite the scientific consensus, some political leaders in the United States deny the need for policy making in response to sea level rise. Even in coastal Florida and Virginia, where communities face acute risks of flooding and economic damage, the problem has been denied. Land use development and real estate professionals, when discussing the subject, have a responsibility to do better than our political leaders. In fact, the ethical codes of the professions – law, architecture, engineering, planning, real estate, and corporate compliance – all demand honesty. Material facts must be disclosed, and professionals cannot conceal truth, particularly if it leads to fraud or misconduct.

Elsewhere on Earth, ethical considerations have influenced sea level rise policy. In the Netherlands, where major cities exist below sea level, political leaders confront the risks of a tragic flood. Dutch engineers have planned and designed projects and revised safety standards related to river widening, flood management, and salt-water intrusion and freshwater supplies. The low-lying Republic of the Marshall Islands also fears the loss of lands and lifestyles. But lacking the economic resources to protect themselves, the nation submitted a resolution to the United Nations decrying the threats created by the rising seas upon human rights to life, property, culture, food,

* Keith W. Rizzardi is a law professor at St. Thomas University in Miami Gardens, Florida, where he teaches environmental law and professional responsibility. A graduate of the University of Virginia and University of Florida, he has served as a trial attorney for the U.S. Department of Justice, a managing attorney for the South Florida Water Management District, and the director of a water law program in the Netherlands. He also has earned board certifications in state and federal administrative practice and in corporate compliance and ethics.

housing, health and water.

While public sector representatives wrestle with decisions to adapt to, mitigate for, or retreat from sea level rise, the private sector has a role to play. Corporations, by law, have rights and privileges; with them must come corporate social responsibility. Mere compliance with law is insufficient when a company’s real estate endeavors fail to protect human rights. Ethical behavior by the real estate professions and corporations means informing the people, partnering with the public sector leaders, protecting the public interest, and ensuring a resilient community with a sustainable future.

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I. Introduction

Despite a scientific consensus, the United States political leadership remains embroiled in a legislative and policy debate over the existence of sea level rise and the responses to it.¹ Meanwhile, homeowners and businesses face real questions and serious risks when they make long-term investment decisions—

1. See Ryan McNeill, Deborah Nelson & Duff Wilson, *As the Seas Rise, a Slow-Motion Disaster Gnaws at America’s Shores*, REUTERS (Sept. 4, 2014, 1:00 PM), <http://www.reuters.com/investigates/special-report/waters-edge-the-crisis-of-rising-sea-levels/> (describing congressional deadlock in the area of climate change) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

including, significantly, whether and where to buy real estate.² Rising seas will affect our human habitats, and our densely developed coastal communities provide the homes, workplaces, recreational opportunities, and governmental tax bases that drive our economies.³ The land use development and real estate professionals, when discussing these matters, have an ethical and moral responsibility to do better than our political leaders.

Whether climate change is anthropogenic or natural is irrelevant. The data on and results of sea level rise cannot be ignored.⁴ Some places, of course, face greater risks than others.⁵ Due to its unusual geological features, including geographic subsidence that accelerates sea level rise, Coastal Virginia faces huge risks.⁶ Similarly, Miami-Dade County, Florida has more people living less than 4 feet above sea level than any U.S. state, except Louisiana.⁷ Rising seas threaten all these low-lying coastal communities.⁸ Nevertheless, these places continue to build and

2. See *id.* (identifying sea level change as one threat to the investment value of a home).

3. See *id.* (describing the economic importance of coastal communities).

4. Brian McNoldy, *Water, Water, Everywhere: Sea Level Rise in Miami* (October 3, 2014), <http://www.rsmas.miami.edu/blog/2014/10/03/sea-level-rise-in-miami/> (“Like many low-lying coastal cities around the world, Miami is threatened by rising seas. Whether the majority of the cause is anthropogenic or natural, the end result is indisputable: sea level *is* rising and it *is* due to climate change. It is not a political issue, nor does it matter if someone *believes* in it or not.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

5. See *Sea Level Rise in Hampton Roads: New Challenges for Bay Localities*, VNLRI, at 3, available at <http://www.virginia.edu/ien/vnrli/wp-content/uploads/2013/09/SLR-Final.pdf>. (describing that Hampton Roads VA is sinking, exacerbating the effects of climate change on the coast) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

6. See *id.* (listing the effects of subsidence).

7. See Forbes Tompkins & Christina Deconcini, *Sea-Level Rise And Its Impact On Miami-Dade County*, 2014 WORLD RESOURCES INST. 3, available at http://www.wri.org/sites/default/files/sealevelrise_miami_florida_factsheet_final.pdf (noting that with the exception of Louisiana, Miami Dade county has the largest number of people living four feet above sea level) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

8. See Ben Strauss, *Cities Below Future Seas*, CLIMATE CENTRAL (July 29, 2013) (<http://www.climatecentral.org/news/sea-level-rise-locking-in-quickly-cities-threatened-16296>) (noting that sea levels could rise over twenty-

grow, develop and redevelop, perhaps blissfully unaware of the risks ahead.⁹ Survey data in Florida shows that a majority of respondents believe that sea-level rise will not threaten their coastal property during their lifetime.¹⁰

This article explores the concepts of law, ethics, professionalism, and corporate social responsibility, applying them in the context of coastal land use development and real estate. Part II considers the ethical obligations of the various real estate professions and the client corporations, noting a common concern for honesty and disclosure to clients and third parties. Part III then discusses the laws and facts related to sea level rise, noting the special risks in the coastal communities of South Florida and Coastal Virginia. Part IV acknowledges the human rights implications of sea level rise, and ultimately, Parts V and VI suggest, as a solution, an embrace of ethics, professionalism, and corporate social responsibility by real estate and land use development professionals and corporations. In sum, in addition to openly discussing and disclosing the serious risks of sea level rise, corporations and individual real estate professionals should take an active role, confronting the challenges ahead by helping entire coastal communities to adapt.

II. Truth, Material Facts and Omissions: the Minimum Professional Standards.

Coastal development is an interdisciplinary human activity. Investments are made, finances secured.¹¹ Lands are

three feet in the future) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

9. See KEVIN WOZNAK, GARIN DAVIDSON, & THOMAS ANKERSEN, FLORIDA'S COASTAL HAZARDS DISCLOSURE LAW: PROPERTY OWNER PERCEPTIONS OF THE PHYSICAL AND REGULATORY ENVIRONMENT WITH CONCLUSIONS AND RECOMMENDATIONS 38 (2012), available at <http://nsgl.gso.uri.edu/flsgp/flsgps12001.pdf> (finding that the coastal populations are unaware of the issues presented by coastal development in the listed communities) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

10. See *id.* at 33 (listing the findings of a study in which 78.8 percent of respondents said that they did not believe their property would erode).

11. See Karen Demasters, *Rethinking that Beachfront Property*, FINANCIAL ADVISOR (Oct. 1, 2005), <http://www.fa-mag.com/news/article->

modified, waters managed.¹² Permits are obtained, landscapes or buildings constructed.¹³ The whole enterprise requires the collective effort of corporations and their highly trained employees such as lawyers, planners, engineers, real estate, and compliance professionals.¹⁴

All of these professions have ethical codes, too.¹⁵ The codes establish essential duties of each profession.¹⁶ Of special significance, these professional duties are not limited to clients.¹⁷ Again and again, the various ethical codes all make it clear that honesty—to everyone—is expected.¹⁸ Material facts must be disclosed and professionals cannot participate in the concealment of truth, particularly if it leads to fraud or misconduct.¹⁹

Florida lawyers, for example, must comply with Chapter 4 of the Rules Regulating the Florida Bar and the Rules of

1232.html (describing the financial aspects of beachfront property investment) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

12. See SOUTH CAROLINA DEP'T OF HEALTH AND ENVTL. CONTROL, SOUTH CAROLINA GUIDE TO BEACHFRONT PROPERTY: INSIGHT FOR INFORMED DECISIONS 11 (Nov. 2014), *available at* www.sdhec.gov/library/CR-003559.pdf (listing the requirements for landowners who wish to build on the coastline of South Carolina) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

13. See *id.* at 12 (describing the permits required for coastal construction in South Carolina).

14. See *generally id.* (overviewing what is required to develop coastal property in South Carolina).

15. See *generally* MODEL RULES OF PROF'L CONDUCT (2013) (ethical rules for lawyers); AICP CODE OF ETHICS AND PROF'L CONDUCT (2009), <https://www.planning.org/ethics/ethicscode.htm> (ethical rules for planners) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); NSPE CODE OF ETHICS FOR ENGINEERS (2007), *available at* <http://www.nspe.org/sites/default/files/resources/pdfs/Ethics/CodeofEthics/Code-2007-July.pdf> (ethical rules for engineers) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); NAT'L ASSOC. OF REALTORS CODE OF ETHICS (2012), <http://www.realtor.org/mempolweb.nsf/pages/code> (ethical rules for realtors) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

16. See *infra* notes 22, 28, and 29.

17. See *infra* note 34 (describing realtor duties to each other).

18. See *infra* notes 22, 28, and 29.

19. See *infra* note 22.

Professional Conduct,²⁰ and Virginia lawyers must adhere to the Virginia State Bar Rules of Professional Conduct.²¹ Both systems of lawyer regulation are modelled after the American Bar Association's Model Rules of Professional Responsibility.²² According to these ethical systems, lawyers are not merely advocates for their client's desires; rather, the profession has a higher calling.²³ A duty of truthfulness applies, requiring full disclosure and informed consent in dealings with clients and candor when dealing with the courts.²⁴ Florida and Virginia also require lawyers to make affirmative disclosures to third parties and even opposing parties. For example, the Rules Regulating the Florida Bar, Rule 4-4.1, states that a lawyer may not "(a) make a false statement of material fact or law to a third person; or (b) fail to disclose a material fact to a third person when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client," and Virginia's parallel rule even omits the term

20. See generally RULES REGULATING THE FLORIDA BAR, RULES OF PROFESSIONAL CONDUCT (2014) [hereinafter FLORIDA RULES], available at <https://www.floridabar.org/tfb/TFBLawReg.nsf/840090c16eedaf0085256b61000928dc/4586762990367be185256e4300524284!OpenDocument> (listing the professional responsibilities of lawyers who are members of the Florida Bar) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

21. See generally VIRGINIA STATE BAR RULES OF PROFESSIONAL CONDUCT [hereinafter VIRGINIA RULES], available at <http://www.vsb.org/docs/2009-10-rpc.pdf> (describing the professional responsibilities of Virginia Lawyers) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

22. See generally MODEL RULES OF PROF'L CONDUCT (2013) [hereinafter ABA RULES], (identifying professional duties of an attorney in the ABA).

23. See FLORIDA RULES, *supra* note 20, at Preamble (stating that a lawyer should "strive to attain the highest level of skill"); VIRGINIA RULES *supra* note 21, at Preamble (stating that lawyers should "strive to attain the highest level of skill"); ABA RULES *supra* note 22, at Scope (stating that a lawyer should act with a higher motivation than simple compliance with these rules).

24. See, e.g., VIRGINIA RULES, *supra* note 21, at Rule 1.6; and FLORIDA RULES, *supra* note 20, at Rule 4-1.6 (discussing implied, authorized, and adverse disclosures, even of otherwise confidential information, when required by law or court order, client fraud, auditors); VIRGINIA RULES, *supra* note 21, at Rule 3.3; and FLORIDA RULES, *supra* note 20, at Rule 4-3.3 (prohibiting false statements of fact or law to a tribunal, the failure to disclose certain facts related to a criminal or fraudulent act by the client, the failure to disclose controlling legal authority, and offering or continuing to rely upon evidence that the lawyer knows to be false).

“material,” prohibiting “any false statement of fact or law.”²⁵ While confidentiality is essential in the attorney client relationship, both Virginia and Florida recognize that an attorney might, at times, need to elevate a potentially harmful and unlawful decision to the organizational leadership.²⁶ At some point, such as when a lawyer becomes embroiled as a participant in a client’s fraud or misrepresentations, the lawyer might even have a duty to withdraw from the representation.²⁷

These lawyers can be involved in coastal development activities in any number of ways. At the beginning of the process, they might assist with obtaining zonings or variances for a parcel; at the end of the process, they might engage in review of the final contract for sale. But the entire process often begins with a different group of professionals, such as planners and architects, who create the vision and blueprints for a project and a community. The American Institute of Certified Planners, in its mandatory Code of Conduct, states that certified planners “shall not deliberately or with reckless indifference fail to provide adequate, timely, clear and accurate information on planning issues.”²⁸ Meanwhile architects, working within the vision of the

25. FLORIDA RULES, *supra* note 20, at Rule 4-4.1. See VIRGINIA RULES, *supra* note 21, at Rule 4.1 (requiring “Truthfulness In Statements To Others,” stating that a lawyer may not knowingly “(a) make a false statement of fact or law; or (b) fail to disclose a fact when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client.”). The commentary notes that Virginia found the term “material” to be redundant. *Id.* at Committee Commentary. Both states recognize that certain types of statements, such as estimates of price or value in negotiation, are not statements of fact, while emphasizing that a lawyer cannot contribute to a client’s crime or fraud or misrepresentation. *Id.* at Comment: Statements of Fact; FLORIDA RULES, *supra* note 20, at Rule 4-4.1 cmt.: Statements of Fact.

26. See VIRGINIA RULES, *supra* note 21, at Rule 1.13, (stating that a lawyer representing a corporation “shall proceed as is reasonably necessary in the best interest of the organization”); FLORIDA RULES, *supra* note 20, at Rule 4-1.13 (stating the requirements of a lawyer in the event he discovers activity that could harm the corporation).

27. See, e.g., VIRGINIA RULES, *supra* note 21, at Rule 1.16, (stating that a lawyer may resign regardless of any material adverse effects on his client’s interests if the lawyer’s services perpetuate a crime or fraud); FLORIDA RULES, *supra* note 20, at Rule 4-1.16 (stating that a lawyer may withdraw representation is “the client has used the lawyer’s services to perpetuate a crime or fraud”).

28. See AICP CODE OF ETHICS AND PROF’L CONDUCT § B.1 (2009), <https://www.planning.org/ethics/ethicscode.htm> (describing the rules of conduct

planners, design structures and neighborhoods. According to the American Institute of Architects Code of Ethics and Professional Conduct, architects shall not counsel or assist a client in conduct that the architect knows, or reasonably should know, is fraudulent or illegal, nor engage in conduct involving the wanton disregard of the rights of others.²⁹ Similarly, architects speaking in their professional capacity shall not knowingly make false statements of material fact.³⁰

Eventually, the visions cast by the planners and the architects will become a reality, thanks, in part, to the engineers. Like the other professions involved in land use development and real estate, engineers also display little tolerance for untruths and misrepresentations. For example, the American Society of Civil Engineers Code of Ethics, states that Engineers uphold and advance the integrity, honor and dignity of the engineering profession by: (1) using their knowledge and skill for the enhancement of human welfare and the environment; (2) being honest and impartial and serving with fidelity the public, their employers and clients.³¹ In addition, the Guidelines associated with Canon 1.a and 1.b. emphasize that “the lives, safety, health and welfare of the general public are dependent upon engineering judgments, decisions and practices incorporated into structures, machines, products, processes and devices,” and calls upon the profession to only approve documents “determined to be safe for public health and welfare in conformity with accepted engineering standards.”³² The civil engineering Code of Conduct,

for profession planners (on file with THE WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

29. See AM. INST. OF ARCHITECTS, CODE OF ETHICS & PROF'L CONDUCT, at Rules 2.104 and 2.106 (2012), available at <http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiap074122.pdf> (instructing architects to avoid fraudulent activity) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

30. See *id.* at Rule 4.103 (“Members speaking in their official capacity shall not knowingly make false statements of material fact.”).

31. See AM. SOC'Y OF CIVIL ENGR, CODE OF ETHICS, at Canons 1, 6 (2006), http://www.asce.org/code_of_ethics/ (describing the duties of a conscientious civil engineer) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

32. *Id.* at Canon 1(a)–(b).

Canon 6, further notes that the profession shall act with “zero tolerance for bribery, fraud, and corruption.”³³

Finally, someone will sell the property. According to the National Association of Realtor’s Code of Ethics, once again, honesty is essential.³⁴ Article 1 provides that realtors have an obligation “to treat all parties honestly,” including, of course, their client.³⁵ Article 2 says realtors “shall avoid exaggeration, misrepresentation, or concealment of pertinent facts relating to the property or the transaction.”³⁶ While realtors are not obligated to possess expertise in other professional or technical disciplines, Standard of Practice 2-1 does require them to “discover and disclose adverse factors reasonably apparent to someone with expertise in those areas required by their real estate licensing authority.”³⁷ In Florida, for example, the Natural Hazards Disclosure law requires the seller or seller’s agent to disclose property that is located in flood hazard zones,³⁸ and a case for fraud and malpractice can be based upon the failure to disclose flood risks.³⁹ In Virginia, realtors also have a duty to

33. *Id.* at Canon 6.

34. See NAT’L ASSOC. OF REALTORS, CODE OF ETHICS, Art. 1 (2012), <http://www.realtor.org/mempolweb.nsf/pages/code> (recognizing a duty for realtors to “treat all parties honestly”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

35. *See id.* (acknowledging that realtors have a primary obligation to their clients, but also that all parties must be treated with honesty).

36. *Id.* Art. 2.

37. *See id.* Art. 2, Standard of Practice 2-1 (requiring that realtors identify obvious deficiencies with the property for their clients).

38. *See* FLA. STAT. § 161.57 (2006) (requiring sellers to inform purchasers if the real property is in a coastal area “subject to frequent and severe fluctuation”); *see also* KEVIN WOZNIAK, GARIN DAVIDSON & THOMAS ANKERSEN, FLORIDA’S COASTAL HAZARDS DISCLOSURE LAW: PROPERTY OWNER PERCEPTIONS OF THE PHYSICAL AND REGULATORY ENVIRONMENT WITH CONCLUSIONS AND RECOMMENDATIONS 8 (July 2012), *available at* <http://nsgl.gso.uri.edu/flsgp/flsgps12001.pdf> (noting that sellers must notify buyers if the property is in a coastal construction control line) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

39. *See* Kaplan v. Kimball Hill Homes Fla., Inc., 915 So.2d 755, 761 (Fla. Dist. Ct. App. 2005) (affirming the trial court’s order granting the motion to compel arbitration on fraud and fraudulent inducement claims, where the Kaplans alleged that Kimball Hill failed to disclose pertinent facts concerning water runoff and drainage from adjacent property onto the homesite).

disclose the physical condition of a property, including a history of periodic flooding.⁴⁰

The ethical mandates must be followed in order for professionals to maintain their licenses and credentials. But these professionals also work in and for corporations and organizations that often have another group of employees—compliance professionals—whose job is to help the corporations ensure that they follow all of the governing applicable requirements and rules of law.⁴¹ Companies are expected to implement and enforce robust compliance programs.⁴² If a company fails to implement such a program, and then violates the law, federal prosecutors will hold the companies and the

40. See *Walton v. Aguilar*, Case No. 2010-106, at 3 (16th Jud. Cir. Oct. 28, 2010) (citing Virginia Code § 54.1-2131(B)), available at http://blog.tarleyrobinson.com/wp-content/uploads/2012/03/Walton-v_-Aguilar.pdf (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

41. See *Compliance Professional*, ASSOC. CERTIFIED FRAUD EXAMINERS, <http://www.acfe.com/career-path-compliance-professional.aspx> (last visited Apr. 21, 2015) (providing a job description for a compliance officer) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

42. See U.S. SENTENCING GUIDELINES MANUAL § 8B2.1 (2011), Effective Compliance and Ethics Program <http://www.ussc.gov/guidelines-manual/2011/2011-8b21> (The principles of a successful compliance program have been separately set forth by the U.S. Sentencing Commission. Developed to identify certain measures expected of corporations and organizations, the first of the seven principles of self-policing is to establish standards and procedures to prevent and detect misconduct conduct.) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT). The seven principles of an effective ethics and compliance program are (1) to establish standards and procedures to prevent and detect misconduct conduct; (2) to ensure that organizational leadership, including senior officers and boards, is knowledgeable of and oversees the compliance program; (3) to take reasonable efforts to exclude bad actors from managerial ranks; (4) to implement routine education communications and training programs; (5) to monitor, audit and evaluate the effectiveness of the program, in part by maintaining a confidential system for employee reporting of non-compliance; (6) to promote and enforce the program through appropriate incentives and disciplinary measures; and (7) to take reasonable steps to respond to and prevent misconduct when it occurs. *Id.*; see also Kwamina Williford & Daniel Small, *Establishing an Effective Compliance Program: An Overview to Protecting Your Organization*, ASSOCIATION OF CORPORATE COUNSEL (Jan. 25, 2013), <http://www.acc.com/legalresources/quickcounsel/eaecp.cfm> (correlating U.S. Sentencing Guidelines to corporate compliance programs) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

executives accountable.⁴³ In addition, companies may have internal policies and procedures, developed and adhered to by those compliance professionals.⁴⁴ According to the minimum ethical standards set forth in the Rules of Conduct by the Society for Corporate Compliance and Ethics, truthfulness is paramount.⁴⁵ The first two Rules of Conduct provide that compliance professionals “shall not aid, abet or participate in misconduct” and “shall take such steps as are necessary to prevent misconduct by their employing organizations.”⁴⁶ When investigating and reporting misconduct, compliance professionals are further required to pursue their professional activities “with honesty, fairness and diligence.”⁴⁷ But when wrongdoing is discovered, the compliance professionals, like their attorney counterparts, possess a responsibility to escalate the matter to the highest governing body, to consider resigning, and to report the problem to public officials when required by law.⁴⁸

43. See, e.g., Scott Schools, *DOJ Confirms, Once Again, That Compliance Plans Really Do Matter*, LAW.COM (Mar. 31, 2014), <http://www.law.com/sites/scottnschools/2014/03/31/doj-confirms-once-again-that-compliance-plans-really-do-matter/#ixzz3IgoREB84> (citing a speech by former head of the DOJ Criminal Division, Acting Assistant Attorney General Mythili Raman recognizing that strict compliance programs are taken into account when the DOJ pursues fraudulent activity) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

44. See, e.g., SEC. INDUS. ASSOC.: COMPLIANCE AND LEGAL DIV., WHITE PAPER ON THE ROLE OF COMPLIANCE 4 (2005), available at http://www.sifma.org/uploadedfiles/societies/sifma_compliance_and_legal_society/role_of_compliance_white_paper%20%28%29.pdf (listing the responsibilities of compliance professionals in securities firms, including developing internal policies and procedures to comply with laws and regulations) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

45. See SOC'Y FOR CORP. COMPLIANCE AND ETHICS, CODE OF PROFESSIONAL ETHICS FOR COMPLIANCE AND ETHICS PROFESSIONALS, at Rule 3.1, available at <http://www.corporatecompliance.org/Portals/1/Users/169/29/60329/SCCE%20Code%20Of%20Ethics-English.pdf> (stating that compliance and ethics professionals should “pursue their professional activities, including investigations of misconduct, with honesty, fairness, and diligence”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

46. *Id.* at Rules 1.1, 1.2.

47. *Id.* at Rule 3.1.

48. See *id.* at Rule 1.4 (describing the duties of a compliance professional when there is misconduct).

In sum, for many professions, truthfulness is an essential part of their ethical codes. But when it comes to sea level rise and coastal development, our real estate professions have lost sight of the boundaries between and demands of law, truth, and ethics.

III. What is Truth, Anyway?

As a matter of federal case law, the risks of sea level rise for coastal communities have been acknowledged, though not necessarily fully adjudicated.⁴⁹ In *Massachusetts v. EPA*,⁵⁰ the Supreme Court—albeit, sharply divided—held that “the rise in sea levels associated with global warming has already harmed and will continue to harm Massachusetts. The risk of catastrophic harm, though remote, is nevertheless real.”⁵¹ Congress has acknowledged sea level rise, too.⁵² The Global Climate Protection Act of 1987 recognized the potential for increased temperatures, altered weather patterns, and agricultural productivity, and “thermal expansion of the oceans and partial melting of the polar ice caps and glaciers, resulting in rising sea levels.”⁵³ Moreover, the U.S. Environmental Protection Agency, in its findings associated with a Clean Air Act rulemaking exercise on whether greenhouse gases endangered public health, explained that evidence of adverse impacts in the areas of water resources, sea level rise, and coastal areas were of special concern to current and future generations.⁵⁴ EPA further

49. See *infra* note 51 (identifying cases in which sea level rise was considered by the reviewing court).

50. 549 U.S. 497 (2007).

51. See *id.* at 526 (describing why the Supreme Court held that Massachusetts had standing to sue the EPA); see also, *Green Mountain Chrysler Plymouth Dodge Jeep v. Crombie*, 508 F. Supp. 2d 295, 316–17 (D. Vt. 2007) (concluding that uncertainty was not a basis for rejecting the expert testimony of NASA scientist Dr. James Hansen, and stating that “[t]he unprecedented nature of current human-made forcing means that history is not a perfect guide. However, that the situation is unprecedented does not mean that scientists may not testify reliably as to global warming’s likely effects.”).

52. See Global Climate Protection Act, Pub. L. No. 100–204, § 1102, 101 Stat. 1407, 1408 (1987) (developing an action plan for addressing climate change).

53. See *id.* (describing the possible causes of global warming and the studies being conducted by the government).

54. See Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. at

noted that the “most serious potential adverse effects are the increased risk of storm surge and flooding in coastal areas from sea level rise and more intense storms.”⁵⁵ Other federal agencies, including the Army Corps of Engineers, Global Climate Research Program, National Academy of Sciences, the National Research Council, and the U.S. Navy, have echoed EPA’s concerns.⁵⁶

Many of these agencies also cite the Nobel Prize-winning work conducted by the Intergovernmental Panel on Climate Change (“IPCC”), a multinational scientific body organized under the auspices of the United Nations.⁵⁷ The IPCC Fourth Assessment Report considered thermal expansion of the ocean, changes in salinity and ocean density, glacial and ice cap melting, and the effects on surface temperatures and precipitation, all while attempting to account for a dynamic climate system.⁵⁸ In 2013, an updated IPCC report on sea level rise increased the estimates for sea level rise in this century,⁵⁹ and concluded that “[i]t is

66,498 (Dec. 15, 2009) (to be codified at 40 C.F.R. pt. 1) (identifying coastal areas as those most obviously at risk in climate change scenarios).

55. See *id.* at col. 2 (looking at current trends associated with stronger storms and deeper storm surges and predicting increased damage to coastal communities)

56. See Keith W. Rizzardi, *Sea Level Lies: The Duty to Confront the Deniers*, 44 STETSON L. REV. 75, 98–101 (2014) (summarizing various government documents on sea level rise).

57. See generally INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, UNDERSTANDING CLIMATE CHANGE: 22 YEARS OF IPCC ASSESSMENT (2010) (explaining the structure of the IPCC and summarizing the reports and progress made since its inception), available at https://www.ipcc.ch/pdf/press/ipcc_leaflets_2010/ipcc-brochure_understanding.pdf (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT). Over time, the IPCC has issued four reports (1990, 1995, 2001, and 2007), and “[t]housands of scientists and experts from all over the world contribute to the preparation of IPCC reports as authors, contributors, review editors and expert reviewers; none of them paid by the IPCC.” *Id.* at 2, 5–7.

58. See *id.* Gerald A. Meehl et al., *Global Climate Change Projections*, in CLIMATE CHANGE 2007: THE PHYSICAL SCIENCE BASIS 747, 812–816 (Susan Solomon et al. eds. 2007), available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-chapter10.pdf> (addressing sea level change in the Twenty-First Century) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

59. See John A. Church et al., *Sea Level Change*, in CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 1137, 1140 (T.F. Stocker et al. eds. 2013), available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter13_FINAL.pdf (addressing sea level rise

virtually certain that global mean sea level rise will continue beyond 2100, with sea level rise due to thermal expansion to continue for many centuries.”⁶⁰ The report also emphasized that risks are localized because sea level change will have strong regional patterns.⁶¹ But the IPCC report has also been criticized as too conservative, because it failed to take into account critical tipping points, such as the potential melting of the Greenland ice cap.⁶²

Recognizing the federal law and the evidence, states have passed laws related to sea level rise, too.⁶³ To adapt to sea level rise, communities will eventually need to implement a combination of four techniques: protection (defensive structures such as shoreline armoring or beach renourishment); accommodation (such as altered design of stormwater and flood control systems to reduce risks); managed retreat (including removal or relocation of developments); or avoidance (preventing development in places subject to future risks).⁶⁴ A vast number of decisions will need to be made, in both the public and private sectors, and an equally vast amount of money will be needed to implement these decisions.

Inevitably, laws and appropriations passed by state legislators must follow. Yet the evidence overwhelmingly shows that management of sea level rise necessitates an exercise in risk

projections) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

60. *Id.*

61. *See id.* (“It is very likely that in the 21st century and beyond, sea level change will have a strong regional pattern, with some places experiencing significant deviations of local and regional sea level change from the global mean change.”).

62. *See* JOHN ENGLANDER, *HIGH TIDE ON MAIN STREET* (2d ed. 2013).

63. *See* Rizzardì, *supra* note 56, at 88–93 (summarizing various government documents on sea level rise and discussing statutes, executive orders, legislative resolutions, and regulations in California, Connecticut, Maryland, Massachusetts, Louisiana, New York, New Jersey, North Carolina, Rhode Island, and Washington).

64. *See* SOUTH FLORIDA REGIONAL PLANNING COUNCIL, *ADAPTATION ACTION AREAS: POLICY OPTIONS FOR ADAPTIVE PLANNING FOR RISING SEA LEVELS* 4–5 (Nov. 6, 2013), *available* at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/final-report-aaa.pdf> (describing four main adaptation strategies) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

assessment and a plan for action.⁶⁵ Waters are rising and with the floods will come physical risks to our buildings, our transportation infrastructure, our drinking water systems, and our sewage treatment systems.

Sea level rise represents a fundamental paradigm shift, sometimes called the “death of stationarity” by water managers.⁶⁶ Old data is no longer representative and the once in one hundred year event may prove to be a far more frequent occurrence.⁶⁷ In other words, for low lying coastal communities, the rare floods could become commonplace. Hard decisions will need to be made. Which places will society protect and which ones will we abandon? In considering these questions, the specific risks facing South Florida and Coastal Virginia deserve special note.

A. Facts and Risks in South Florida

In low-lying South Florida, despite vast evidence of rising seas⁶⁸ and even with periodic tidal flooding triggering National Weather Service flood warnings,⁶⁹ coastal development continues

65. See *id.* at 3–5 (noting effects of sea level rise and possible solutions).

66. See, e.g., P. C. D. Milly et. al., *Stationarity Is Dead: Whither Water Management?* 319 SCIENCE 573, 573–574 (Feb. 2008), available at <http://www.sciencemag.org/content/319/5863/573.full> (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

67. See Frances Moore, *Debunking the Urban Legend of Climate Change*, CLIMATE INSTITUTE, <http://www.climate.org/topics/climate-change/debunking-climate-change-myths.html> (last visited Apr. 22, 2015) (explaining that data based on satellite estimates of tropospheric temperature is now outdated) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

68. According to the University of Miami’s Rosenstiel School of Marine and Atmospheric Science, sea levels have trended upward as much as 2.5 inches during the period between 1996 and 2013. McNoldy, *supra* note 4 (“Simple linear trends drawn through annual averages of all high tides, low tides, and the mean sea level are shown below, and all three lines are about 4.5” higher in 2013 than they were in 1996.”)

69. See *High Tidal Levels Could Cause Minor Coastal Flooding*, EYES ON NEWS: SOUTH FLORIDA EDITION (Oct. 17, 2013), <http://eyesonnews.com/high-tidal-levels-could-cause-minor-coastal-flooding> (stating flooding from just high tide events has become more common and caused the National Weather Service to issue a coastal flood warning from a 2013 high tide event in Miami-Dade) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

to boom.⁷⁰ Numb to the risks ahead, Florida passed the Florida Climate Protection Act in 2012, a law that *repealed* the state's effort to address greenhouse gas emissions.⁷¹ Still, some measures to address sea level rise remain. Florida's state land acquisition efforts are required to address the challenges of global climate change by providing opportunities to sequester carbon and to "otherwise mitigate and help adapt to the effects of sea level rise."⁷² Local governments can define an "[a]daptation action area" to identify "one or more areas that experience coastal flooding due to extreme high tides and storm surge and that are vulnerable to the related impacts of rising sea levels for the purpose of prioritizing funding for infrastructure needs and adaptation planning."⁷³ In a 2013 report on the subject, the South Florida Regional Planning Council explained that this law provides a tool that can be used by local government to address a variety of policy options: zoning, floodplains, building codes, setbacks and buffers, coastal armoring, development and rebuilding conditions, transfers of development rights, utilities, fees, and assessments.⁷⁴

Florida's governor, unconvinced that the climate change is real,⁷⁵ has largely left the task of responding to sea level rise and

70. See, e.g., Jeff Goodell, *Goodbye, Miami*, ROLLING STONE (June 20, 2013), <http://www.rollingstone.com/politics/news/why-the-city-of-miami-is-doomed-to-drown-20130620> (commenting that Miami's "skyline is crowded with construction cranes") (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); *Sea Level Rise or Not, Coastal Development in South Florida is Booming*, HOMELAND SECURITY NEWS WIRE (Oct. 23, 2014), <http://www.homelandsecuritynewswire.com/dr20141023-sea-level-rise-or-not-coastal-development-in-south-florida-is-booming> (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

71. See H.R. 4001, 2012 Leg., Reg. Sess. (Fla. 2012) (repealing Florida's efforts to implement climate change protections through a Department of Environmental Protection regulatory program in 2012).

72. See FLA. STAT. § 259.105(18)(d) (2014) (explaining what the Division of State lands must prioritize annually as a result of the Florida Forever Act).

73. FLA. STAT. § 163.3164(1) (2011).

74. See SOUTH FLORIDA REGIONAL PLANNING COUNCIL, *supra* note 64, 13–23 (discussing tools available to local governments to address climate change).

75. See, e.g., Mary Ellen Klas, *Florida Scientists Press Gov. Rick Scott on Climate Change*, TAMPA BAY TIMES (July 15, 2014), <http://www.tampabay.com/news/politics/stateroundup/florida-scientists-press->

planning for adaptation action areas to local governments.⁷⁶ But the state, through its Department of Economic Opportunity, has acknowledged that due to sea level rise, communities may experience an increase in coastal vulnerability, including “increased flooding and drainage problems, Destruction of natural resource habitats, [h]igher storms surge, increased evacuation areas and evacuation time frames, [i]ncreased shoreline erosion, [s]altwater intrusion, and [l]oss of infrastructure and existing development.”⁷⁷ To deal with these severe threats, the Department offers guidance, planning tools, and even funding opportunities.⁷⁸ Nevertheless, some counties continue to ignore the issue.⁷⁹

The governments of Southeast Florida, however, are clearly aware of the risks ahead, as shown by the partnership

gov-scott-on-climate-change/2188637 (noting Gov. Rick Scott’s noncommittal stance on climate change) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

76. See, e.g., Chris Mooney, *Forget “Bans” on Talking About Climate. These Florida Republicans are too Busy Protecting Their Coasts*, WASH. POST (Mar. 31, 2015), <http://www.washingtonpost.com/news/energy-environment/wp/2015/03/31/the-unlikely-group-of-republicans-who-are-preparing-florida-for-climate-change/> (discussing agreements between counties in Southeast Florida to address climate change) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

77. See *Apdaptation Planning (Adapting to Sea Level Change)*, FLA. DEPT. OF ECON. OPPORTUNITY, <http://www.floridajobs.org/community-planning-and-development/programs/technical-assistance/community-resiliency/adaptation-planning> (last visited Mar. 29, 2015) (highlighting methods of adapting to sea level change) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

78. See *id.* (outlining methods for dealing with sea level change).

79. See, e.g., Steve Doane, *Southwest Florida Governments Not Planning for Sea Rise*, NEWS-PRESS.COM (August 2, 2014), <http://www.newspress.com/story/news/2014/08/02/southwest-florida-governments-planning-sea-rise/13532083/> (noting a lack of preparation in Southwest Florida in response to rising sea levels) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); *but see*, Debra Kahn, *San Francisco Bay Area Enacts Sea-Level Rise Policy* (October 7, 2011), available at <http://www.scientificamerican.com/article/san-francisco-bay-area-enacts-sea-level-rise-policy/> (stating the City of San Francisco passed a coastal development plan allowing the denial of permits in coastal areas susceptible to flooding. Based on state projections of 16 inches of sea level rise, as much as 180,000 acres of lands could be off-limits to development by 2050) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE AND THE ENVIRONMENT).

between Monroe County (the Florida Keys), Miami-Dade County, Broward County (home to Fort Lauderdale) and Palm Beach County to create the Southeast Florida Regional Climate Change Compact.⁸⁰ The Compact, signed in 2009, committed the four counties to participate in annual regional summit meetings, to work cooperatively to engage in legislative advocacy, and to share staff resources to create mitigation and adaptation strategies and a Southeast Florida Regional Climate Action Plan.⁸¹

In a sobering effort, the Compact participants carefully evaluated existing projections and scientific literature to develop a unified sea level rise projection for Southeast Florida, projecting one foot of sea level rise beyond the 2010 levels between 2040 and 2070, but noting that a two foot rise is possible by 2060.⁸² As the Compact Counties further explained in a vulnerability analysis, even just one foot of sea level rise brings consequences to hospitals, schools, power plants, and roads.⁸³ Dangers increase as

80. See SOUTHEAST FLA. REG'L CLIMATE CHANGE COMPACT, <http://www.southeastfloridaclimatecompact.org/> (last visited Mar. 29, 2015) (listing the members of the compact) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

81. See SOUTHEAST FLA. REGIONAL CLIMATE CHANGE COMPACT, WHAT IS THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT?, *available at* <https://southeastfloridaclimatecompact.files.wordpress.com/2014/05/compact-1-page-flyer-ia-final-sa.pdf> (describing the formation of the Southeast Florida Regional Climate Change Compact) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

82. See SOUTHEAST FLA. REG'L CLIMATE CHANGE COMPACT TECHNICAL AD-HOC WORK GROUP, SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT COUNTIES, A UNIFIED SEA LEVEL RISE PROJECTION FOR SOUTHEAST FLORIDA 6–7 (Apr. 2011), *available at* <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/sea-level-rise.pdf> (finding that a 24-inch increase in sea level is possible by 2060) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

83. See SOUTHEAST FLA. REG'L CLIMATE CHANGE COMPACT INUNDATION MAPPING AND VULNERABILITY ASSESSMENT WORK GROUP, ANALYSIS OF THE VULNERABILITY OF SOUTHEAST FLORIDA TO SEA LEVEL RISE 6–11 (Aug. 2012), *available at* <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/vulnerability-assessment.pdf> [hereinafter VULNERABILITY] (discussing separate areas of vulnerability in Southeast Florida) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT). With only one foot of sea level rise, four hospitals, 65% of the schools and 71% of the emergency shelters in the Florida Keys are vulnerable, power plants properties in Miami-Dade and Broward are exposed, and more

the oceans rise. Responding to this risk analysis, the Compact Counties developed an action plan.⁸⁴ The multi-layered plan recommends modifying existing legal structures and decision-making, drafting new local government policy documents, developing goals and progress indicators, coordinated, multi-disciplinary outreach and education programs, and processes for focused and prioritized investments.⁸⁵ The efforts and projections made by the Compact counties should be considered by every coastal landowner and the professionals who work on coastal land use issues.

Coastal flooding is an obvious risk. Historically, in South Florida, a 7-foot-high storm surge, such as the one seen in Miami-Dade County during Hurricane Wilma, had a likelihood of happening once every 76 years.⁸⁶ However, if sea levels along Miami-Dade's coast rise by just one foot, the same 7-foot storm surge will occur once every 21 years.⁸⁷ If sea levels rise just over 2 feet, that surge could happen once every 5 years.⁸⁸ And even without storm surges, the upper estimate of taxable property values vulnerable across the region is greater than \$4 billion at just one foot, with values rising to over \$31 billion at the 3 foot scenario.⁸⁹

than 81 miles of roadway from Miami-Dade County to Palm Beach County are at elevations below sea level at the one foot scenario. *See id.*

84. *See generally* SOUTHEAST FLA. REG'L CLIMATE CHANGE COMPACT COUNTIES, A REGION RESPONDS TO A CHANGING CLIMATE (October 2012), *available at* <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf> (reviewing the Southeast Florida Regional Climate Compact action plan) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

85. *See id.* at vi (noting the modes for implementing the policy recommendations).

86. *See* Tompkins & Deconcini, *supra* note 7, at 3 ("The 7-foot-high storm surge in Miami-Dade County from Hurricane Wilma has a likelihood of happening once every 76 years").

87. *See id.* ("If sea level along Miami-Dade's coast rises by just over another foot, the same 7-foot storm surge would have a likelihood of occurring once every 21 years.")

88. *See id.* ("If sea level along Miami-Dade's coast rises slightly above 2 feet, the same 7-foot storm surge would have a likelihood of occurring once every 5 years.")

89. *See* VULNERABILITY, *supra* note 83, at 6 (noting the value of taxable property at risk from rising sea levels).

In addition to the massive potential for flood damage to be done to homes and businesses, regional infrastructure is at risk, too. Of particular significance, water control structures could be damaged, and sewer systems and septic systems can be contaminated, creating serious risks to public health long after the storm event has passed.⁹⁰ The canals and drainage systems that keep Florida's low-lying lands dry will also be affected.⁹¹ Smaller storm events will flood yards, swales, and ditches along roadsides. Moreover, the roads are also designed to flood in larger storm events.⁹² But if the flood control system is damaged, rainfall from a series of small daily thundershowers will drain more slowly, accumulating on the roads just as a large storm would, and rendering community mobility difficult and, at times, impossible.⁹³

In a 2009 analysis, the South Florida Water Management District, a multi-county governmental entity responsible for the management of the Central and Southern Florida Flood Control System, candidly explained these flooding risks, and more.⁹⁴

90. See SOUTH FLA. WATER MGMT. DIST., CLIMATE CHANGE & WATER MANAGEMENT IN SOUTH FLORIDA 14–17 (Nov. 9, 2009), available at http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/climate_change_and_water_management_in_sflorida_12nov2009.pdf (noting potential implications for regional water treatment plants) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

91. See *id.* at 14 (noting the impact of sea level rise on canals).

92. See, e.g., SOUTH FLA. WATER MGMT. DIST., MANAGING FLOOD WATER BEFORE AND AFTER THE STORM, available at http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/bts_before_after_storm.pdf (explaining how storms can affect roads) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

93. Cf. CCSP, IMPACTS OF CLIMATE CHANGE AND VARIABILITY ON TRANSPORTATION SYSTEMS AND INFRASTRUCTURE: GULF COAST STUDY, PHASE I. A REPORT BY THE U.S. CLIMATE CHANGE SCIENCE PROGRAM AND THE SUBCOMMITTEE ON GLOBAL CHANGE RESEARCH, DEPT. OF TRANSP., 445 (M. J. Savonis, V.R. Burkett, and J.R. Potter, eds., 2008); FLA. PLANNING AND DEV. LAB, Taking the High Road: Integrating Hazard Mitigation into Long Range Transportation Planning, FLA. STATE UNIV. <http://fpdl.coss.fsu.edu/Research-Projects/Integrating-Hazard-Mitigation-into-Long-Range-Transportation-Planning> (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

94. See Kim Shugar & Jayantha Obeysekera, *Climate Change and Sea Level Rise Planning and Adaptation Strategies*, SOUTH FLA. WATER MGMT. DIST. (Feb. 10, 2010), available at

Flooding conditions could become particularly bad during hurricane season, as agency scientists have repeatedly explained to the regional water management leadership in public presentations.⁹⁵ Sea level rise will force coastal flood control gates to close, to avoid the “negative flows” of salt water into the canal systems and aquifers.⁹⁶ Closing the gates significantly reduces coastal spillway’s flood discharge capacity.⁹⁷ While pumps may eventually be installed at some locations to move the water, regional drainage capacity will still be reduced and floods events will last longer.⁹⁸

In addition to flood risks, temperature increases associated with climate change could also alter storm and rainfall patterns, resulting in droughts that raise the risks of fire, agricultural decline, and non-functional public water supply storage and well field systems.⁹⁹ Rising seas will alter coastal wetlands and estuaries, changing the environment and coastal fisheries.¹⁰⁰ Tropical storm and hurricane patterns will change,

http://www.sfwmd.gov/paa_dad/docs/F2139791537/W%20Item%208A_Climate%20Change%20District%20Update%20-%20J%20Obeysekera%20and%20K%20Shugar.pdf (outlining planning and adaptation strategies through a joint workshop with the Water Resource Advisory Commission) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

95. See *id.* at 3 (showing that storms and hurricanes as well as rising seas, increasing temperature, and changing precipitation, will affect regional water management leaders efforts concerning flood control, water supply, natural systems and water quality).

96. See *id.* at 10 (continuing the attempt by climate change scientist to educate policy makers on the effects of climate change on their localities).

97. See *id.* (highlighting the impact reduced flood discharge capacity as particularly harmful in the latter part of hurricane season).

98. See *id.* at 7 (charting the vulnerability of these coastal regions to increased flooding and providing several strategies for adapting to these dangers).

99. See generally UNITED STATES GLOBAL CHANGE RESEARCH PROGRAM, GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES (Thomas R. Karl., J. M. Melillo, & T. C. Peterson eds., 2009) [hereinafter USGCRP], available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> (reporting to Congress on behalf of the National Science and Technology Council summarizing “the science of climate change and the impacts of climate change on the United States, now and in the future”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

100. See *id.* at 12 (listing the key findings of the comprehensive study on the impacts of climate change in the United States).

potentially becoming less frequent but more intense.¹⁰¹ Coastal drinking water supplies will be further impacted by accelerated saltwater intrusion as salt water seeps into the freshwater aquifers, jeopardizing drinking water supplies for the community.¹⁰² In sum, sea level rise presents a multi-layered problem, with no easy solutions.

B. Facts and Risks in Coastal Virginia

Similar difficulties lie ahead for Coastal Virginia. In the region, properties already experience floods. And, echoing the Florida experience, despite the floods, properties are rebuilt.¹⁰³ Paralleling the Florida experience, Virginia's legislators and policymakers have also been inconsistent and, at times, unrealistic about the threats posed by sea level rise.¹⁰⁴ The

101. See *id.* at 24 (“Increases in tropical precipitation are projected during rainy seasons (such as monsoons)... Certain regions, including the U.S. West (especially the Southwest) and the Mediterranean, are expected to become drier. The widespread trend toward more heavy downpours is expected to continue, with precipitation becoming less frequent but more intense.”).

102. See *id.* at 12 (explaining how climate change will stress water resources); see also KRISTIN JACOBS, KATY SORENSON, GEORGE NEUGENT, & SHELLEY VANA, SOUTHEAST REGIONAL CLIMATE CHANGE COMPACT 1, available at https://www.broward.org/NaturalResources/ClimateChange/Documents/fourcounty_compact.pdf (“[R]ising sea levels could limit the effectiveness of critical drainage infrastructure, endanger beaches, and coastal natural resources and increase incidents of saltwater intrusion on the Biscayne Aquifer – putting at risk the drinking water supply for the entire population of Southeast Florida”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

103. See Wendy Koch, *Rising Sea Levels Torment Norfolk, Va., and Coastal U.S.*, USA TODAY (Dec. 18, 2013, 2:47 PM), <http://www.usatoday.com/story/news/nation/2013/12/17/sea-level-rise-swamps-norfolk-us-coasts/3893825/> (describing the experience of home owners in Virginia's tidewater region who have been offered federal funds to raise their houses in flood zones despite these homes being classified as “sever repetitive loss properties”. The government offers to cover up 75% of improvements on houses that can exceed \$100,000) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

104. See Rebecca Leber, *Virginia Lawmaker Says ‘Sea Level Rise’ Is A ‘Left Wing Term,’ Excises It From State Report On Coastal Flooding*, CLIMATE PROGRESS, (June 10, 2012, 6:59 PM), <http://thinkprogress.org/climate/2012/06/10/496982/virginia-lawmaker-says-sea-level-rise-is-a-left-wing-term-excises-it-from-state-report-on-coastal-flooding/> (discussing political maneuvers used to downplay the significance of a scientific

Commonwealth's former Attorney General, a climate change skeptic, once used his subpoena powers to investigate the alleged fraud being committed by university climate scientists.¹⁰⁵ Nevertheless, the Virginia legislature directed the Virginia Institute of Marine Science to develop and "offer specific recommendations for the detailed investigation of preferred options for adapting to relative sea-level rise" by the start of the 2013 regular legislative session.¹⁰⁶

The responsive report ultimately came back with an analysis of recurrent coastal flooding using four plausible scenarios of sea-level rise for planning purposes.¹⁰⁷ The "historic" scenario used observed long-term rates of sea-level rise going back a century or more, with no acceleration of sea level rise,

report on the impact of climate change on Virginia's coastal regions) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

105. See John Collins Rudolf, *A Climate Skeptic With a Bully Pulpit in Virginia Finds an Ear in Congress*, NY TIMES (February 22, 2011), available

at http://www.nytimes.com/2011/02/23/science/earth/23virginia.html?pagewanted=all&_r=0 (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); Editorial, *Ken Cuccinelli's Climate-Change Witch Hunt*, WASH. POST (March 11, 2012) http://www.washingtonpost.com/opinions/ken-cuccinellis-climate-change-witch-hunt/2012/03/08/gIQApmd5R_story.html (recounting actions taken by Ken Cuccinelli against Michael E. Mann as a costly example of governmental overreach) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

106. See VA H.D.J. Res. 50 (2012) & VA S.J. Res. 76 (2012) (listing three requirements on the Virginia Institute of Marine Science to create a list of similar strategies for addressing sea level rise throughout the United States, look into the feasibility of these studies, and offer recommendations).

107. See *Sea-Level-Rise Scenarios*, VIRGINIA INST. OF MARINE SCIENCE, http://www.vims.edu/newsandevents/topstories/slr_scenarios.php (last visited Mar. 17, 2015) (summarizing the institute's report on sea level rise pursuant to the declaration of the Virginia Legislature) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); see also Dave Malmquist, *VIMS Calls for Flexible, Multi-Step Approach to Deal with Flood Risk*, VIRGINIA INST. OF MARINE SCIENCE (January 12, 2013), available at http://www.vims.edu/newsandevents/_docs/flooding_study.pdf ("The report makes clear that no single response will fully address the complex web of social, legal, and environmental issues that contribute to Tidewater's vulnerability to coastal flooding. Instead, it calls for a multi-step approach with enough flexibility to allow policymakers to adapt as conditions change and knowledge grows.") (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

estimating a rise of more than 1.5 feet on the Virginia coast.¹⁰⁸ The “low” scenario, based on the conservative assumptions in the IPCC reports, estimated more than 3 feet of sea level rise.¹⁰⁹ The “high” scenario, using the upper end of projections derived from global observations of sea level and air temperature, estimated 5.5 feet of sea level rise.¹¹⁰ And the “highest” scenario, based on ice-sheet loss, glacial melting, and a practical worst-case scenario based on current understanding, projected more than 7.5 feet of sea level rise.¹¹¹ Although topography and population density varies in Coastal Virginia much more than South Florida, maps of the projected effects of sea level rise show widespread adverse impacts.¹¹² Of the 634 miles of estuarine shorelines along the Chesapeake Bay, approximately 120 square miles of dry land lie within 3 feet of current tidal lines.¹¹³ Moreover, Coastal Virginia is experiencing substantial land subsidence,¹¹⁴ and the region has the highest rate of measured sea level rise over the last 100 years

108. See VIRGINIA INST. OF MARINE SCIENCE, RECURRENT FLOODING STUDY FOR TIDEWATER VIRGINIA 110–12, available at [http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/SD32013/\\$file/SD3.pdf](http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/SD32013/$file/SD3.pdf)

(chronicling the history of sea level rise in Virginia) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY CLIMATE AND THE ENVIRONMENT).

109. See *id.* at 78 (charting sea level rise scenarios).

110. See *id.* (depicting historic, low, high, and highest scenarios for sea level rise).

111. See *id.*

112. See *Maps Depicting Likelihood of Shore Protection Along the Virginia Coast*, SEA LEVEL RISE PLANNING MAPS, <http://plan.risingsea.net/Virginia.html> (last visited Mar. 17, 2015) (compiling a list of maps comparing relative sea level rise in Virginia) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

113. See J.G. Titus, Carl Hershner, et al., *Virginia, in THE LIKELIHOOD OF SHORE PROTECTION ALONG THE ATLANTIC COAST OF THE UNITED STATES* 691, 701 (James G. Titus & Daniel Hudgens eds., 2010), available at http://papers.risingsea.net/federal_reports/shore-protection-retreat-sea-level-rise-Virginia.pdf (listing the findings of the report) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

114. See Jack Eggleston & Jason Pope, *Land Subsidence and Relative Sea-Level Rise in the Southern Chesapeake Bay Region*, U.S. GEOLOGICAL SURVEY 1 (2013), available at <http://pubs.usgs.gov/circ/1392/pdf/circ1392.pdf> (stating that “The southern Chesapeake Bay region is experiencing land subsidence and rising water levels due to global sea-level rise; land subsidence and rising water levels combine to cause relative sea-level rise.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

of any state on the east coast,¹¹⁵ and an estimated 16 inches of sea level rise is expected by 2050.¹¹⁶ Whereas the 7 foot storm surge flood historically occurred once every 28 years, projections are that 2 foot of sea level rise will mean major flooding every 1.7 years.¹¹⁷ Three feet of sea level rise could trigger major flooding three times every year.¹¹⁸

In a statement of particular import to all the real estate professions named in this article, Virginia's report called for a comprehensive, multi-level combination of management, accommodation, and protection measures as the adaptation strategy to prepare the community to coexist with the rising seas.¹¹⁹ The report emphasized that "it is possible for Virginia to have an effective response to increasing flood issues BUT it takes time (20-30 years) to effectively plan and implement many of the adaptation strategies."¹²⁰ Potential management measures include zoning policies to discourage development in high-risk areas and reclamation of flood-prone lands.¹²¹ Accommodation includes raising buildings and roads, establishing emergency plans, and creating or enhancing storm water systems.¹²² Protection measures include engineering solutions such as levees, seawalls, and tidal gates, structures, and even living shorelines,

115. See William A. Stiles, Jr. A "Toolkit" For Sea Level Rise Adaptation In Virginia, WETLANDS WATCH 1, available at <http://www.wetlandswatch.org/Portals/3/WW%20documents/sea-level-rise/ASCE%20Meeting%20Paper.pdf> [hereinafter Toolkit] (providing a general overview of the effects of sea level rise in Virginia) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

116. See *Facts and Findings: Sea Level Rise and Storm Surge Threats for Virginia*, CLIMATE CENTRAL, available at <http://slr.s3.amazonaws.com/factsheets/Virginia.pdf> (listing projections for sea level rise in 2050) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

117. See Toolkit, *supra* note 115, at 4 (predicting rate of sea level rise).

118. *Id.*

119. See RECURRENT FLOODING STUDY, *supra* note 108, at 39 (explaining multi-level adaptation strategies).

120. *Id.* at vii.

121. See Toolkit, *supra* note 115, at 10 (citing further examples of policies that can combat the risk associated with rising sea levels).

122. See *id.* at 9–10 (explaining that when addressing sea level rise adaptation one should consider four categories: planning, incentives/disincentives, direct investment in public infrastructure, and land use and regulatory).

dunes, and created marshes.¹²³ No solution completely removes the risks. After the report was issued, educators, and local governments continued to host listening sessions and information presentations, raising public awareness of the issues.¹²⁴

C. Truth, Risk, Insurance and the Uncertainty Conundrum

Similar explanations of the risks of sea level rise could be offered in other places all across the nation: Boston, Charleston, New Orleans, New York, Seattle, and Tampa all face serious threats of coastal flooding.¹²⁵ In theory, state and local governments and emergency managers should be protecting the public by assessing risks, hazards, and potential losses, and by preparing plans to mitigate those risks.¹²⁶ To fund these efforts, the Federal Emergency Management Agency provides grants, too, which may in the future be withheld from entities that fail to

123. See RECURRENT FLOODING STUDY, *supra* note 108, at 14–30 (stating suggestions for protecting coast lands from rising sea levels).

124. For example, a Virginia Sea Grant sponsored a series of programs, including listening sessions and informative presentations on “Community Resilience in Coastal Virginia,” involving the coordinated efforts of the University of Virginia, City of Virginia Beach, the Hampton Roads Planning District Commission, and Gloucester County. Jane Ford, *Public Meetings Set to Explore Ways to Plan for Sea Level Rise in Virginia Beach*, UVATODAY (Feb. 5, 2011), <https://news.virginia.edu/content/public-meetings-set-explore-ways-plan-sea-level-rise-virginia-beach> (announcing the planning sessions) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

125. Baden Copeland, Josh Keller & Bill Marsh, *What Could Disappear*, N.Y. TIMES (Nov. 24, 2012), http://www.nytimes.com/interactive/2012/11/24/opinion/sunday/what-could-disappear.html?_r=0 (depicting the effects of sea level rise in cities across the United States) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

126. See, e.g., *State Mitigation Plan Review Guide Highlights of Key Concepts*, FEMA, at 3 (Sept. 8, 2014), available at http://www.fema.gov/media-library-data/1410365092470-4dcaea71807b36f564f8e7841be4ff6b/State%20Mitigation%20Plan%20Review%20Guide_Key%20Concepts.pdf (“The purpose of this document is to share key concepts FEMA is considering changing or 27 strengthening in the updated version of the ‘Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000,’ last issued in January 2008.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

include climate change in disaster planning.¹²⁷ While federal agencies must consider climate change and its effects on flooding,¹²⁸ the unfortunate truth is that FEMA has failed to protect the public from the risks of climate change denial, because it does not mandate the consideration of estimated sea level rise in hazard mitigation, and the issues remains within the state or local government's discretion.¹²⁹ Eventually, the federal government might force the states and localities to act, and the boundaries of federalism will be tested yet again.¹³⁰ But in the meanwhile, the state and local process of climate change planning can be (and has been) painfully and dangerously slow.

Of course, a phased and multi-layered approach can be reasonable, as the U.S. Army Corps of Engineers explained in a 2014 guidance document on planning for sea level rise. That document emphasized the need for decisions to be made that would allow communities to implement projects and measures

127. Federal Emergency Management Agency, State Mitigation Plan Review Guide, Released March 2015 Effective March 2016 FP 302-094-2 available at http://www.fema.gov/media-library-data/1425915308555-aba3a873bc5f1140f7320d1ebeb18c6/State_Mitigation_Plan_Review_Guide_2015.pdf; see discussion in News Staff, Through State Mitigation Guide, FEMA Acknowledges Possible Penalties for Climate Change Deniers, Emergency Management (March 20, 2015) available at <http://www.emergencygmt.com/disaster/State-Mitigation-Guide-FEMA-Possible-Penalties-Climate-Change-Deniers.html>

128. Executive Order Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (Jan. 30, 2015). <https://www.whitehouse.gov/the-press-office/2015/01/30/executive-order-establishing-federal-flood-risk-management-standard-and-> (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

129. See *Incorporating Sea Level Rise (SLR) into Hazard Mitigation Assistance (HMA) Benefit Cost Analysis Frequently Asked Questions (FAQs)*, FEMA, available at <http://www.fema.gov/media-library-data/1387903260455-e6faefb55a3f69d866994fb036625527/HMA+Sea+Level+Rise+FAQ+12-23-2013.pdf> ("Does FEMA mandate including SLR in all HMA applications? No. FEMA does not mandate the inclusion of estimated SLR for HMA project applications. The state or local community may use SLR to consider future conditions in mitigating future flood risk.") (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

130. The authority of the federal government to coerce state action through the withholding of grants has been upheld. See, e.g. *South Dakota v. Dole*, 483 U.S. 203 (1987) (Congress, through its control of the federal spending power, can encourage uniformity in the States' drinking ages by attaching conditions on the receipt of federal funds).

adapting to sea level rise with sufficient lead time for planning and construction.¹³¹ Yet the Corps also recognized the current conundrum: uncertainty makes it hard to make a decision, but decision paralysis might be worse.¹³²

Despite the case law discussion, the factual data, the overwhelming scientific consensus, and the substantial risks ahead, individuals might continue to insist that sea level rise is fiction.¹³³ To some degree, truth has different meanings across the professions. A scientist might accept something as true, whereas a lawyer might not.¹³⁴ Climate change is clearly a concept still being tested in the courts and in the marketplace of ideas.¹³⁵ But the fact is that for a great majority of the US coastline, relative sea level (RSL) has been rising over the past 60 years, a pattern consistent with the global trend.¹³⁶ Even if future sea level rise proves not to be as acute as the worst case projections suggest, the actual data, and the future *risks*, are undeniable.¹³⁷ In fact, in its 2012 assessment of sea level rise, NOAA frames the entire discussion of sea level rise in terms of

131. See Technical Letter No. 1100-2-1 from James C. Dalton, Chief, Eng'g & Constr. Div., Dep't of the Army U.S. Army Corp of Eng'rs, to the Commander, at 3-1 (June 30, 2014), *available at* http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1100-2-1.pdf (highlighting the need for proactive efforts) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

132. See *id.* (addressing the uncertainty in making decisions about sea level rise).

133. See Karl S. Coplan, *Climate Change, Political Truth, and the Marketplace of Ideas*, 2012 UTAH L. REV. 545, 546 (2012) (“[C]limate science must confront cognitive bias and framing issues in the polity.”).

134. See *id.* at 550–51 (discussing the ideological schism between scientists and politicians in the context of “the marketplace of ideas”).

135. See *id.* at 551 (“When it comes to global climate change . . . the scientific consensus—that catastrophic global warming is likely . . . has not achieved popular acceptance.”).

136. See NOAA TECHNICAL REPORT OAD CPO-1, GLOBAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES NATIONAL CLIMATE ASSESSMENT 1 (Dec. 6, 2012), *available at* http://cpo.noaa.gov/sites/cpo/Reports/2012/NOAA_SLR_r3.pdf (providing an executive summary of the study) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

137. See *id.* (“Scenarios . . . describe future potential conditions in a manner that supports decision-making under conditions of uncertainty.”).

risk management.¹³⁸ Like Florida and Virginia, NOAA assessed the problem by offering four scenarios: low change, intermediate low, intermediate high, and high.¹³⁹ The lowest sea level change scenario, an 8 inch rise, is based on historic rates of observed sea level change, but emphasizes that this scenario “should be considered where there is a high tolerance for risk,” such as projects with a short lifespan or flexibility to adapt within the near-term.¹⁴⁰ An intermediate-low scenario of 1.6 feet of sea level rise is based on projected ocean warming, and an intermediate-high scenario of 3.9 feet of sea level rise is based on projected ocean warming and recent ice sheet loss.¹⁴¹ Finally, the highest sea level change scenario of 6.6 foot of sea level rise, “reflects ocean warming and the maximum plausible contribution of ice sheet loss and glacial melting. This highest scenario should be considered in situations where there is little tolerance for risk.”¹⁴² Of note, recent analyses have suggested that rates of sea level rise might even be accelerating faster than previously calculated.¹⁴³

Presumably, given their vulnerability to sea level rise and its effects, South Florida and Coastal Virginia should be communities with little tolerance for risk. For these places, sea level rise is an existential matter.¹⁴⁴ And the importance of action by both government and business is further elevated by the

138. See *id.* (discussing the methodologies of the study and the purpose of using multiple scenarios).

139. See *id.* (“[S]pecific probabilities or likelihoods are not assigned to individual scenarios in this report, and none of these scenarios should be used in isolation.”).

140. See *id.* at 2 (discussing uncertainties involved among the several scenarios).

141. See *id.* at 1–2 (reporting the results of the study).

142. See *id.* at 2 (differentiating across the scenarios).

143. Carling C. Hay, Eric Morrow, Robert E. Kopp & Jerry X. Mitrovica, Probabilistic reanalysis of twentieth-century sea-level rise, *Nature* 517, 481–484 (22 January 2015) doi:10.1038/nature14093 Last updated: 4 May 2015 19:5:46 EDT available at <http://www.nature.com/nature/journal/v517/n7535/full/nature14093.html>

144. See, e.g., Bradley G. Bodiford, *Florida’s Unnatural Disaster: Who Will Pay for the Next Hurricane*, 21 U. FLA. J.L. & PUB. POL’Y 147, 148 (2010) (presenting a disastrous scenario if a strong hurricane affects south Florida).

realities of insurance.¹⁴⁵ Historically, people could protect themselves from the risks of real estate ownership.¹⁴⁶ But sea level rise is changing the insurance world too. In Florida, the state already bears the risks of wind insurance for many properties, with state run Citizen's Insurance providing coverage.¹⁴⁷ In Coastal Virginia, many areas are below the floodlines, and simply cannot be insured.¹⁴⁸

For the insurance industry, there is no doubt that sea level rise is real.¹⁴⁹ Insured losses for the global insurance industry due to weather related events have risen dramatically: from \$6.4 billion per year in the 1980s to \$40 billion for the first decade of the 2000's.¹⁵⁰ At some point, in some places, the risks will become uninsurable, and the insurers will withdraw.¹⁵¹

145. See *id.* at 151–52 (discussing underlying problems caused by lowering hurricane insurance for political gain).

146. See *id.* at 152–53 (explaining that homeowner's insurance for coastal property in Florida has reached rates that are prohibitively expensive, lessening protection to coastal real estate compared to what it once was).

147. See *id.* at 151–53 (explaining Florida's hurricane insurance program).

148. See Aaron Applegate, *Norfolk Sea Level Rise Takes Shine off Waterfront Homes*, PILOTONLINE.COM, (Sept. 28, 2014), <http://hamptonroads.com/2014/09/norfolk-sea-level-rise-takes-shine-waterfront-homes> (“Homes in the flood plains with mortgages are required by lenders to have insurance from the subsidized National Flood Insurance Program. . . . [R]eforms are steadily increasing rates—about 18 percent a year—until they represent coverage of the true cost of the risk.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

149. See Eduardo Porter, *For Insurers, No Doubts on Climate Change*, N.Y. TIMES (May 14, 2013), <http://www.nytimes.com/2013/05/15/business/insurers-stray-from-the-conservative-line-on-climate-change.html?pagewanted=all> (“[N]atural catastrophes . . . pounded insurers last year, generating \$35 billion in privately insured property losses, \$11 billion more than the average over the last decade.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

150. See HARVEY RUVIN ET AL., MIAMI-DADE SEA LEVEL RISE TASK FORCE AND RECOMMENDATIONS 10 (July 1, 2014), available at <http://www.miamidade.gov/planning/library/reports/sea-level-rise-final-report.pdf> (discussing the financial effects of natural disasters on insurance companies) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

151. See generally Virginia Haufler, *Insurance and Reinsurance in a Changing Climate*, WOODROW WILSON INT'L CTR. FOR SCHOLARS (May 18, 2006), available at <http://www.wilsoncenter.org/sites/default/files/Paperhaufler.pdf>

Faced with that possibility, concerns about drinking water, roads or sewer systems seem inconsequential. Lacking insurance, the owners of the unprotected coastal community homes and businesses will be left with nothing, and no remedies, when the predictable catastrophe finally occurs. Indeed, insurance is becoming a crucial driver of how society responds to the coastal hazard of sea-level rise.¹⁵²

Despite the physical and economic risks, the stark reality remains that, in the United States, our political leaders in these communities can choose to do absolutely nothing about the risks of sea level rise.¹⁵³ Although FEMA may eventually end up deeply involved in disaster response efforts, neither federal nor state law mandates large-scale mitigation or prevention alternatives to evade that foreseeable future. Instead, at best, our government is engaged in a large scale planning discussion.¹⁵⁴ But in the meanwhile, in the private economy, people buy homes,

(addressing the withdrawal of insurance companies after major storms) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

152. See *Insurance Issues*, FLORIDA SEA GRANT, <https://www.flseagrant.org/climatechange/coastalplanning/insurance-issues-coast/> (last visited Apr. 23, 2015) (discussing changes in the National Flood Insurance Program) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

153. See generally Steve Doane, *Southwest Florida Governments not Planning for Sea Rise*, NEWS-PRESS.COM (Aug. 2, 2014), <http://www.newspress.com/story/news/2014/08/02/southwest-florida-governments-planning-sea-rise/13532083/> (noting that Lee and Collier counties in southwest Florida have no “specific plans to address the impacts of sea level rise”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); but see, Debra Kahn, *San Francisco Bay Area Enacts Sea-Level Rise Policy*, SCIENTIFIC AMERICAN (Oct. 7, 2011), <http://www.scientificamerican.com/article/san-francisco-bay-area-enacts-sea-level-rise-policy/> (explaining that the City of San Francisco passed a coastal development plan allowing the denial of permits in coastal areas susceptible to flooding; based on state projects, up to 180,00 acres of land could be precluded from development by 2050) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

154. See generally FLORIDA DEPT. OF ECON. OPPORTUNITY, *HOW COUNTRIES, STATES, AND FLORIDA ADDRESS SEA LEVEL RISE A COMPENDIUM OF CLIMATE ADAPTATION RESEARCH* 65, available at <http://www.floridajobs.org/fdcp/dcp/AdaptationPlanning/CompendiumNationalStateLocalAdaptationProjects.pdf> (discussing recommendations for anticipating sea-level rise impacts on various coastal states) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

some committing to 30-year mortgages. Some of these homes are in places where sea level rise and its consequences present extraordinary risks that could manifest even before the mortgage is paid off.¹⁵⁵

D. Comparative Risk: Never Again vs. Caveat Emptor

The risks and problems associated with sea level rise are global.¹⁵⁶ Low elevation coastal zones, including South Florida and Coastal Virginia, represent just 2% of the total landmass of the earth, but home to 10% of the present world population.¹⁵⁷ Sixty-five percent of megacities with more than 5 million

155. See *id.* at 7–8 (explaining that the study estimates potential economic damage from environmental phenomena in Florida).

156. See, e.g., *Sea-Level Rise in Small Island Nations - Up to Four Times the Global Average - to Cost US\$ Trillions in Annual Economic Loss and Impede Future Development: Shift to Green Policies and Investment Critical*, UNEP NEWS CENTRE (June 5, 2014), <http://www.unep.org/newscentre/Default.aspx?ArticleID=10879&DocumentID=2791#sthash.a489Zy9e.dpuf> (“Climate change-induced sea-level rise in the world’s 52 small island nations - estimated to be up to four times the global average - continues to be the most pressing threat to their environment and socio-economic development with annual losses at the trillions of dollars due to increased vulnerability.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); see also R. Kerry Turner et. al., *Coastal Management for Sustainable Development: Analysing Environmental and Socio-Economic Changes on the UK Coast*, 164 GEOGRAPHICAL J., 269, 270 (Nov. 1998), available at <http://tearai.kete.net.nz/documents/0000/0000/0184/econdev.pdf> (describing threats to coastal zones in England) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); H.E. Pelling, et al., *The Impact of Rapid Coastline Changes and Sea Level Rise on the Tides in the Bohai Sea*, 118 CHINA, J. GEOPHYS. RES. OCEANS, 3462, 3462, available at <http://onlinelibrary.wiley.com/doi/10.1002/jgrc.20258/pdf> (discussing tidal behavior in China over the last thirty-five years) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

157. See Anthony Oliver-Smith, *Sea Level Rise and the Vulnerability of Coastal Peoples: Responding to the Local Challenges of Global Climate Change in the 21st Century*, 7 UNU-EHS, at 5, 20–21 (2009), available at <http://d-nb.info/102969186X/34> (discussing human causes and responses regarding climate change, with a focus on migration) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

inhabitants are located in these regions, and lands and peoples will be affected all over the planet.¹⁵⁸

Consider, for example, the Netherlands, home to Amsterdam and Rotterdam, where many communities exist well below sea level.¹⁵⁹ The nation is known for its iconic water-moving windmills and the complex engineering system that protects the country from floods.¹⁶⁰ The Dutch view on sea level rise stands in sharp contrast to the United States. Although long accustomed to water management, a massive flood changed the national outlook, and the willingness of its people to accept risk.¹⁶¹ The “Misery of 1953” inspired a fundamental shift in the national tolerance of flood risk, and “Never Again” became the Dutch leader’s mantra.¹⁶²

Unsurprisingly, the Dutch have squarely confronted climate change and sea level rise, announcing the Delta Programme in 2014.¹⁶³ Every year, for the next 40 years, the Dutch plan to use € 1 billion for flood risk management and fresh water protection and maintenance, with € 600 million available

158. See *id.* at 20–21 (explaining that the largest levels of relative sea level rise is expected to occur in regions of population density—in India and Bangladesh alone, almost 14 million people would be impacted, in addition to other Asian coastlines, as well as Arctic areas).

159. See *id.* at 21 (describing the Netherlands as densely populated and susceptible to rising sea levels).

160. See *id.* at 27 (describing the Netherlands as a coastal area subject to multiple natural and human-induced stresses, such as subsidence or declining natural defenses).

161. See Molly Moore, *Rethinking Defenses Against Sea’s Power* *Washington Post Foreign Service*, WASH. POST (Sept. 8, 2005), <http://www.washingtonpost.com/wp-dyn/content/article/2005/09/07/AR2005090702400.html> (“On Feb. 1, 1953, a high-tide storm breached the famed Dutch dikes in more than 450 places. Nearly 1,900 people died, many as they slept. More than 47,000 homes and other buildings were swept away or splintered in the icy inundation.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

162. See *id.* (discussing preventative measures taken by the Dutch after “The Misery of 1953”).

163. See generally WORKING ON THE DELTA: PROMISING SOLUTIONS FOR TASKING AND AMBITIONS, DELTA PROGRAMME (2014), available at http://www.deltacommissaris.nl/english/Images/Delta%20Programme%202014_English_tcm310-345435.pdf (outlining how to protect coastline in the Netherlands) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

for annual infrastructure investments.¹⁶⁴ Dutch engineers have already planned and designed projects and revised safety standards related to river widening, flood management, and salt water intrusion and freshwater supplies.¹⁶⁵ Unwilling to accept the risks, the people of the Netherlands are building for a climate-changed future.¹⁶⁶

The American experience is different. While some local leaders in New Orleans and New York might be convinced of the need for action, not even the misery of Hurricane Katrina in 2005 or the storm surges from Superstorm Sandy in 2012 convinced our nation to comprehensively build new infrastructure for sea level rise.¹⁶⁷ Compared with our vulnerable Dutch counterparts, Americans in many similarly situated coastal communities seem far behind. Miami still has no clear plans for self-defense from the rising seas, and officials are still “laying the foundation for action.”¹⁶⁸ In 2014, a task force urgently recommended that the community must accelerate the adaptation process by selecting

164. See *id.* at 7 (discussing how the Dutch will allocate funds to protect their coastline).

165. See *id.* (outlining methods to reduce the risk of large-scale flooding in the Netherlands).

166. See *id.* (“Based on the resources currently available and extrapolated, the Delta Programme Commissioner believes that implementing the necessary measures in good time, i.e. before 2050, is a challenge.”).

167. See *Hurricane & Storm Damage Risk Reduction System*, U.S. ARMY CORPS OF ENGINEERS, <http://www.mvn.usace.army.mil/Missions/HSDRRS.aspx> (last visited Mar. 16, 2015) (charting new flood protection systems in New Orleans, but the Corps clearly and openly describes them as “Hurricane & Storm Damage Risk Reduction Systems”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); see also *Understanding Risk*, U.S. ARMY CORPS OF ENGINEERS, <http://www.mvn.usace.army.mil/Missions/HSDRRS/RiskReductionPlan/UnderstandingRisk.aspx> (last visited Mar. 16, 2015) (“There will always be a risk of storm damage. There is a risk of flooding every year from rainfall and storm surge. Everyone shares in the responsibility to “buy down” risk through zoning, building codes, insurance and other measures.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

168. See *Miami Dade Sea Level Rise Task Force and Recommendations supra* note 150, at 4 (“The Sea Level Rise Task Force recommends accelerating . . . and formally selecting the engineering and other relevant expertise needed to develop the robust capital plan, vetting the elements . . . as well as what measurable indicators will trigger timely sequencing.”)

engineers, developing a capital plan, and addressing critical elements such as flood protection, salinity structures, pump stations, road and bridge designs.¹⁶⁹ Instead, in 2015, Floridians learned that our state governor had an unwritten policy that prevented state officials from even using the terms “climate change.”¹⁷⁰ In fact, employees were instructed to refer to “sea level rise” as “nuisance flooding.”¹⁷¹

Paradoxically, as an article in Bloomberg’s *Businessweek* cynically explained, the governor’s denials, and the continued building boom in America’s vulnerable coastal cities might even be rational – but only in the short term.¹⁷² South Florida relies almost exclusively on real estate taxes to fund public infrastructure, so communities need to maintain the value of real estate if they are to have any hope in the future of implementing measures to adapt to sea level risk.¹⁷³ In addition, naïve buyers and sellers in Miami Beach have not yet “connected the dots” between nuisance flood events and the future consequences of sea level rise – a connection that would spark a dramatic downturn in the tax base.¹⁷⁴ Political denials, however, will not prevent the predictable downturn.

From a consumer and public perspective, and especially when compared with the actions being taken by the similarly vulnerable people of the Netherlands and elsewhere, the laws and policies and actions of the United States, Florida, and Virginia demonstrate an incomplete government commitment to protecting our coastal communities from sea level rise. Rational

169. *See id.* (discussing the plan’s goal of reinventing urban infrastructure).

170. Tristram Korten, In Florida, officials ban term “climate change”, *Miami Herald* (Mar. 8, 2015) available at <http://www.miamiherald.com/news/state/florida/article12983720.html>

171. *Id.*

172. *See* Robert Meyer, *How Climate Change Is Fueling the Miami Real Estate Boom*, *BUSINESSWEEK* (Oct. 20, 2014), <http://www.businessweek.com/articles/2014-10-20/how-climate-change-is-fueling-the-miami-real-estate-boom#p2> (“South Florida’s best shot at coping with the long-term environmental threat may be a strategy that no doubt seems perverse to environmentalists: aggressively foster a collective belief that sea level rise is not something we urgently need to worry about.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

173. *See id.* (discussing a controversial remedy for south Florida).

174. *See id.* (“Controlled ignorance, in some cases, may be a good thing.”).

or not, it is undeniable that the risks of sea level rise are borne by the uninformed consumer. The public sector is failing in its basic duty to protect and secure its people. And in private sector, even though the ethical traditions of the real estate professions (in theory) all insist upon truth and honesty for everyone, they seem to operate (in practice) based on a wholly different principle: *caveat emptor*.

IV. Sea Level Rise and Human Rights.

From a strictly deontological perspective, some people might characterize the actions of the real estate professions as ethical because they are legal. After all, local, state, and federal laws have evolved to establish certain minimum thresholds: codes ensure construction projects conform with safety and hurricane standards; elevated buildings on pilings allow room for floodwaters; coastal setbacks protect dunes; permits are complied with and enforced; certificates of occupancy must be issued. Otherwise, as far as sea level rise is concerned, let the buyer beware.

The potentially transformative nature of sea level rise, and the magnitude of the potential problems, renders these traditional land use development laws and measures insufficient. Given the material facts of sea level rise, mere disclosure seems insufficient, too. Taking a consequential view, is it ethical for a planner, architect, engineer or lawyer to include a small print disclosure in a document, informing a buyer that their land is likely to be flooded by rising seas within the life of the buyer's mortgage, and then to sell the property anyway? Consider, for example, the lawyer advising his banker client at the real estate closing. In a low density coastal neighborhood of Virginia, where the government is unlikely to make massive investments in levees and protections from rising seas, the lawyer should caution the client of the likelihood that the property may be abandoned and the buyer may default. Moreover, the failure to disclose the critical risks of sea level rise to the buyer might even be characterized as an omission of fact that is the equivalent of an unethical affirmative false statement.¹⁷⁵

175. See, e.g., ABA RULES, *supra* note 22, at Rule 4.1 cmt. (2013) ("Misrepresentations can also occur by partially true but misleading statements or omissions that are the equivalent of affirmative false statements."); VIRGINIA RULES, *supra* note 21, at Rule 4.1; FLORIDA RULES, *supra* note 20, at Rule 4-4.1.

For the people who live and work on the coastlines, the buyer's expectation of property ownership as a long-term investment that accrues equity eventually will be replaced by a new model of property ownership as a depreciating asset with a limited time horizon.¹⁷⁶ In some coastal communities, sea level rise may even reflect a threat to human rights.¹⁷⁷ Article 25 of the United Nations' Universal Declaration of Human Rights suggests that everyone has a right to housing and security, even in circumstances beyond our control.¹⁷⁸ Article 12 of the International Covenant on Economic Social and Cultural Rights, which recognizes a right to physical and mental health, has been interpreted to include a right to safe drinking water and sufficient sanitation.¹⁷⁹ The United States has ratified the Universal Declaration of Human Rights—but not the International Covenant. Nevertheless, both documents provide insights into the ethical issues associated with the threats posed by sea level rise.

Given the potential for basic human rights violations, the conduct of the real estate professionals needs rethinking. The Republic of the Marshall Islands, fearing the potential loss of

176. See Jason P. Oppenheim, *The Waters are Rising! Why Isn't My Tax Basis Sinking? Why Coastal Land Should be a Depreciable Asset in Light of Global Warming and the Rise in Sea Level*, 8 U.MASS. L. REV. 228, 238 (2013) (“[F]ederal courts, the Tax Court, and the IRS—through revenue rulings—have always stood firm that land is a non-depreciable asset because it does not have a finite useful life.”).

177. See DELTA PROGRAMME, *supra* note 163, at 38 (“Social disruption occurs if there are large groups of casualties where the flood occurs or if there is a lot of economic damage caused by a flood.”).

178. See Universal Declaration of Human Rights, Art. 25 (1948) (“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security . . . in circumstances beyond his control.”).

179. See International Covenant on Economic, Social and Cultural Rights, G.A. Res. 2200A (XXI) (Dec. 16, 1966), <http://www.ohchr.org/en/professionalinterest/pages/cescr.aspx> (enumerating the steps that participating states must take for the full realization of this standard) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT); Comm. on Economic, Social and Cultural Rights, General Comment 15, 29th Sess., U.N. Doc. E/C 12/2002/11, <http://www1.umn.edu/humanrts/gencomm/escgencom15.htm> (reciting the legal bases of the right to water) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

their national lands as a result of sea level rise, submitted a resolution to the United Nations decrying the threats to the human rights to life, property, culture, food, housing, health and water.¹⁸⁰ Similar arguments could be made in South Florida and Coastal Virginia.

Corporations, and their professionals, should respect human rights. In a 2008 UN report providing a Framework for Business and Human Rights, Professor John Ruggie explained the minimum responsibilities of corporations to ensure that human rights are realized.¹⁸¹ First, he emphasized governments' duty to protect against human rights abuses by third parties, including businesses – which, of course, suggests the need for corporations to comply.¹⁸² Second, he noted businesses' responsibility to respect all human rights.¹⁸³ Third, he acknowledged the need for more effective access to remedies for people affected by corporate related human rights abuses.¹⁸⁴ Applying this Ruggie Framework to a climate changed world, for example, both government and business must act to protect aquifers from sea level rise and to maintain the integrity of the

180. See generally Phillip H. Muller, UN Human Rights Council Res. 7/23, *National Communication regarding the Relationship Between Human Rights & The Impacts of Climate Change* (Dec. 31, 2008), available at http://www.google.com/url?sa=t&ret=j&q=&esrc=s&source=web&cd=1&ved=0CB4QFjAA&url=http%3A%2F%2Fwww.ohchr.org%2Fdocuments%2Fissues%2Fclimatechange%2Fsubmissions%2Fpublic_of_the_marshall_islands.doc&ei=XZdhVKOkFif8yQT8poLYDA&usg=AFQjCNE-E-GccfF81_5K1O57u13yfkYV6g&bvm=bv.79189006,d.aWw&cad=rja (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

181. See UN HUMAN RIGHTS COUNCIL, PROMOTION AND PROTECTION OF ALL HUMAN RIGHTS, CIVIL, POLITICAL, ECONOMIC, SOCIAL AND CULTURAL RIGHTS, INCLUDING THE RIGHT TO DEVELOPMENT 10, available at <http://www.reports-and-materials.org/Ruggie-report-7-Apr-2008.pdf> (noting that “some States are beginning to use ‘corporate culture’ in deciding corporate criminal accountability”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

182. See *id.* at 4 (emphasizing “the State duty to protect against human rights abuses by third parties”).

183. See *id.* at 8 (recognizing “the corporate responsibility to respect human rights”).

184. See *id.* at 4 (stating the ineffectiveness of status quo remedies for individuals affected by human rights abuses inflicted by businesses and corporations).

water infrastructure.¹⁸⁵ The human right to water and sanitation entitles everyone access to a sufficient, safe, physically accessible, and affordable amount of water for personal and domestic uses.¹⁸⁶ And there is an increasing societal expectation that companies will ensure that their operations do not compromise access to safe drinking water and sanitation.¹⁸⁷ Yet, in the United States, actions to protect water supplies from sea level rise remain discretionary; our society seems to be waiting for the catastrophe to occur.¹⁸⁸

But in the meanwhile, it is difficult to reconcile the status quo and risks ahead with the ethical standards of the various professions and human rights declarations.¹⁸⁹ The risks of sea level rise in coastal communities are significant, yet development and the real estate industry marches on.¹⁹⁰ Sure, local zoning and flood control might ensure that houses are developed at a sufficient height above sea level to reduce the risk of flooding, but

185. See *id.* (noting that “as economic actors, companies have unique responsibilities”).

186. See UN HUMAN RIGHTS COUNCIL, REPORT OF THE UNITED NATIONS HIGH COMMISSIONER FOR HUMAN RIGHTS ON THE SCOPE AND CONTENT OF THE RELEVANT HUMAN RIGHTS OBLIGATIONS RELATED TO EQUITABLE ACCESS TO SAFE DRINKING WATER AND SANITATION UNDER INTERNATIONAL HUMAN RIGHTS INSTRUMENTS 10, available at http://www2.ohchr.org/english/issues/water/iexpert/docs/A-CHR-6-3_August07.pdf (emphasizing the importance of access to safe drinking water and the ramifications of lack of access, including inequality resulting from disproportionate impacts on women) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

187. See *id.* at 16 (“Submissions received by the private sector during the consultation process also highlight the fact that various private water providers support recognition of access to safe drinking water as a human right.”).

188. See Oppenheim, *supra* note 176, at 230–31 (“Over the next hundred years the sea level is expected to rise at an accelerated pace due to global warming. Over 20,000 km² of coastal land in the eastern United States is at risk of becoming inundated by a rise in sea level over this period.”).

189. See *supra* Part I (discussing the ethical obligations of the various professions that interact with the problems presented by coastal sea levels).

190. See Oppenheim, *supra* note 176, at 228 (explaining that “[t]he rise in sea level means that many coastal property owners will see a decrease in their property size as the sea inundates the dry land”).

coastal communities will be affected in many other ways.¹⁹¹ What good is a dry home in a community where the roads are unpassable, and drinking water is unavailable? And will there be any remedies for the people whose homes become uninsurable or valueless?

V. Taking the Higher Ground: Professionalism and Corporate Social Responsibility.

Professionals have duties to the community of which they are a part.¹⁹² Among them are restrictive duties not to lie, and affirmative duties to inform.¹⁹³ Unfounded speculations that scientists are wrong, and deflections about “scientific uncertainty,” do not conform with those duties; the ethical considerations for each profession are certain.¹⁹⁴ Are the planners really providing adequate, timely, clear and accurate information on planning issues? Are the architects engaged in false statements of material fact, or conduct involving the wanton disregard of the rights of others? Are the civil engineers being honest and impartial and serving with fidelity the public? Have the realtors concealed pertinent facts relating to the property or the transaction? And are the compliance professionals really ensuring that the companies are acting with honesty, fairness and diligence? And have the lawyers participated in a client’s fraud, or otherwise failed to disclose material facts to their clients or third parties?

Professionals and corporations are not being prosecuted for ethics violations related to sea level rise.¹⁹⁵ Our legal and ethical systems, despite their emphasis upon disclosure of the

191. See McNeil et al., *supra* note 1 (describing the various dangers presented by rising sea levels, including dangers to NASA development projects and also private development).

192. See *supra* Part I (observing the responsibility and ethics obligations of professionals).

193. See *supra* note 24 (explaining that under Virginia law lawyers are prohibited from making false statements of fact or law to a tribunal and obligated to disclose certain facts related to criminal or fraudulent acts committed by their clients).

194. See *supra* note 175 (establishing certain ethical responsibilities for lawyers, emphasizing the duty to communicate in honest manner).

195. See UN HUMAN RIGHTS COUNCIL, *supra* note 181 (advocating for increased criminal accountability for corporations).

truth, have thus far been inadequate to motivate present-day actions to protect the public from a climate-changed future.¹⁹⁶ To some degree, the inaction is explained by the nature of the problem.¹⁹⁷ No one profession can hold a single professional accountable.¹⁹⁸ Licensing authorities may be understandably reluctant to become arbiters of truth on a politically divisive issue,¹⁹⁹ and climate change is a “wicked problem” that defies simple resolution, presenting enormous interdependencies and uncertainties.²⁰⁰ Forward-looking and slowly evolving, the corollary of sea level rise is a matter considered by using projections and estimates – opening it up to criticisms, evasions and deceptions, despite its basis in science and data.²⁰¹ Indeed, even the U.S. Supreme Court has wrestled with the forecasting nature of sea level rising with some justices calling the risks remote but real while others consider them speculative.²⁰²

Still, sea level rise will have extraordinary consequences for coastal communities; people have their life’s savings and

196. See McNeil et al, *supra* note 1 (observing the lack of cooperation and bipartisanship in addressing climate change).

197. See *id.* (discussing the lack of scientific agreement in certain groups over the accurate levels of danger associated with climate change).

198. See *supra* notes 22, 28, 29 (recognizing that many different professions are involved in the discussion of how to address climate change through enforcement of professional ethics requirements).

199. See James Moliterno, *Politically Motivated Bar Discipline*, 83 Wash. U. L. Q. 725, 725 (2005) (noting that “the threat of bar discipline has once again become an overreaction to justifiable fear and turmoil”).

200. See Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 Cornell L. Rev. 1153, 1158–59 (2009) (highlighting “the distinct features of the lawmaking challenges presented by global climate change that render it a ‘super wicked problem’ for public policy resolution and therefore legal redress”).

201. See McNeil et al., *supra* note 1 (discussing the nature of the climate change debate and its reliance on competing information and scientific methods).

202. See *Massachusetts v. EPA*, 549 U.S. 497, 526 (2007) (“[A]t least according to petitioners’ uncontested affidavits—the rise in sea levels associated with global warming has already harmed and will continue to harm Massachusetts. The risk of catastrophic harm, though remote, is nevertheless real.”). *But see Id.* at 542 (Roberts, C.J., dissenting) (rejecting claims that sea-level rise had caused injury to the State of Massachusetts, and concluding that any actual loss of coastline was “pure conjecture”).

livelihoods at stake.²⁰³ Eventually, inescapably, American society will finally be forced to change: the “lawmaking moment” will arrive.²⁰⁴ Perhaps the effects of Superstorm Sandy, which triggered a dialogue in New York and New Jersey, have marked a turning point in the United States.²⁰⁵ Some Florida leaders have begun to discuss the realistic need for robust decision-making, despite the deep uncertainties involved.²⁰⁶ But elsewhere, the continuation of coastal land use development and transactions, and the absence of affirmative disclosures, or other measures to help communities adapt to the rising seas, may represent an ethical failure.²⁰⁷

While ambiguities exist as to the enforceability of professional ethics, the aspirations of each profession provide greater clarity. To adapt to the coming changes, the real estate and land use development professionals should reread and embrace their own professional aspirations. Their employers and clients must engage in corporate social responsibility, too. Aspirational elements of the ethical codes for all the professions – planners, architects, engineers, and yes, even the lawyers – provide clear direction on how these professionals should approach the realities of sea level rise.

203. See Oppenheim, *supra* note 176, at 230–31 (explaining the devastating consequences of the sea-level rise that will inevitably occur without significant action to reverse climate change).

204. See Oppenheim, *supra* note 176, at 230–31 (addressing the dire need for institutional action to respond to growing climate change threats).

205. See Dan Vergano, *Sandy Revives Debate over Sea-Level Rise*, USA TODAY (November 28, 2012, 2:50 PM), <http://www.usatoday.com/story/tech/2012/11/27/sandy-sea-level-rise/1730405/> (“No surprise. The Eastern Seaboard—or any coastal region—occasionally finds itself in the cross hairs of ferocious ocean storms. But it may have taken Sandy to drive home the added threat that scientists have been warning about for years: a rise in the sea level.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

206. See SOUTH FLA. WATER MGMT. DIST., WORKSHOP ON ROBUST DECISION MAKING UNDER DEEP UNCERTAINTY, at ii (Sept. 5, 2014), *available at* <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2014/12/RDMWorkshop-Sept5th-2.pdf> (noting that Robust Decision Making (RDM) is “a quantitative decision-analytic approach for supporting decisions under conditions of deep uncertainty”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

207. See *supra* Part I (arguing that ethical responsibilities of professionals require a response to the severe dangers presented by climate change).

Planners should emphasize the rights of others, demonstrate concern for the long-range consequences of present actions, and promote “excellence of design and endeavor to conserve and preserve the integrity and heritage of the natural and built environment.”²⁰⁸ The ethical codes of both the architects and the civil engineers call for a focus upon sustainable communities: architects should “should advocate the design, construction, and operation of sustainable buildings and communities,”²⁰⁹ and civil engineers should “hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties.”²¹⁰ The engineers’ ethical code even adds a definition of sustainable development: “the process of applying natural, human, and economic resources to enhance the safety, welfare, and quality of life for all of society while maintaining the availability of the remaining natural resources.”²¹¹

As for the lawyers, they have a discretionary duty to advise their client, rendering candid advice, even on matters of economics, politics and morality.²¹² The Preamble to the Rules of

208. See *AICP Code of Ethics and Professional Conduct*, AM. INST. OF CERTIFIED PLANNERS, at § A.1 (Oct. 3, 2009), <https://www.planning.org/ethics/ethicscode.htm> (stating that “[o]ur primary obligation is to serve the public interest and we, therefore, owe our allegiance to a conscientiously attained concept of the public interest that is formulated through continuous and open debate”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

209. See AM. INST. OF ARCHITECTS, 2012 CODE OF ETHICS & PROFESSIONAL CONDUCT, CANON VI, E.S. 6.2, *available at* <http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aiap074122.pdf> (encouraging engineers to “promote sustainable design and development principles in their professional activities”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

210. See *Code of Ethics*, AM. SOC’Y OF CIVIL ENG’R, at Canon 1 (July 23, 2006) http://www.asce.org/code_of_ethics/ (emphasizing the importance of sustainability in execution of professional duties) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE AND THE ENVIRONMENT).

211. See *id.* (enumerating the characteristics of sustainable development, including an explicit focus on quality of life and responsible management of natural resources).

212. See ABA RULES, *supra* note 22, at Rule 2.1 (“In representing a client, a lawyer shall exercise independent professional judgment and render candid advice. In rendering advice, a lawyer may refer not only to law but to

Professional Conduct for Florida and Virginia (and the American Bar Association) further notes that lawyers, as members of a learned profession, “should cultivate knowledge of the law beyond its use for clients” and “employ that knowledge in reform of the law.”²¹³

But perhaps the preamble to the realtor’s code of ethics says it best:

Under all is the land. Upon its wise utilization and widely allocated ownership depend the survival and growth of free institutions and of our civilization. Realtors should recognize that the interests of the nation and its citizens require the highest and best use of the land and the widest distribution of land ownership. They require the creation of adequate housing, the building of functioning cities, the development of productive industries and farms, and the preservation of a healthful environment.²¹⁴

In the foreseeable future, our cities might not function, and some lands may be under the sea.²¹⁵ When it comes to confront the truths of sea level rise, the evidence suggests that

other considerations such as moral, economic, social and political factors, that may be relevant to the client’s situation.”).

213. See FLORIDA RULES, *supra* note 20, at Preamble (emphasizing the importance of access legal services); see also VIRGINIA RULES, *supra* note 21, at Preamble.

214. See *Code of Ethics and Standards of Practice*, NAT’L ASSOC. OF REALTORS, at Preamble (Jan. 1, 2012), <http://www.realtor.org/mempolweb.nsf/pages/code> (“Such interests impose obligations beyond those of ordinary commerce. They impose grave social responsibility and a patriotic duty to which REALTORS® should dedicate themselves, and for which they should be diligent in preparing themselves.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

215. See McNeil et al., *supra* note 1 (“Tidal waters worldwide have climbed an average of 8 inches (20 cm) over the past century, according to the 2014 National Climate Assessment. The two main causes are the volume of water added to oceans from glacial melt and the expansion of that water from rising sea temperatures.”).

our many real estate professions are falling far short of their professional aspirations.²¹⁶

The professional's employers and clients must help, too. Corporations, by law, have many rights and privileges; with them comes the obligation to meet essential responsibilities.²¹⁷ Mere compliance with law is not enough when there are questions as to whether a company's real estate endeavors fail to protect human rights. Principles of corporate social responsibility must apply.

Some critics, continuing to adhere to the notion of caveat emptor, might insist that real estate related corporations have no special duties to protect their customers from sea level rise. Corporate social responsibility, they would claim, is not a business imperative, and ethics and virtue might not be rewarded in the marketplace.²¹⁸ But the ability to make a profit from a person who ignores the facts of sea level rise does not make it ethical. And, even without the restraints of ethics and human rights, the economic case for corporate social responsibility exists, too.²¹⁹ An optimistic economic argument can be made that happier employees lead to better productivity, and happier customers lead to better corporate reputations.²²⁰ Conversely, if

216. See NAT'L ASSOC. OF REALTORS, *supra* note 214 (listing the various responsibilities of realtors related to public service, social responsibility, and non-commercial obligations).

217. See Michael Noer, David M. Ewalt & Tara Weiss, *Corporate Social Responsibility*, FORBES (Oct. 17, 2008), http://www.forbes.com/2008/10/16/corporate-social-responsibility-corprespns08-lead-cx_mn_de_tw_1016csr_land.html (outlining the purpose and characteristics of socially responsible corporate behavior) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

218. See *id.* (arguing that "firms will gain a competitive advantage by appealing to the growing numbers of socially and environmental oriented consumers, investors and employees").

219. See *id.* ("We increasingly hear that corporate social responsibility (CSR) has become a business imperative. ").

220. See, e.g., Devin Thorpe, *Why CSR? The Benefits Of Corporate Social Responsibility Will Move You To Act*, FORBES (May 18, 2013) available at <http://www.forbes.com/sites/devinthorpe/2013/05/18/why-csr-the-benefits-of-corporate-social-responsibility-will-move-you-to-act/> ("While each company I interviewed had varying responses for the benefits of CSR and cause marketing for the company, 51 of 59 believe that they have happier employees and 45 of the 59 believe they end up with better employees, either as a result of being able to attract better talent or that the CSR programs help to develop better employees.") (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

the status quo remains, and the disasters happen, a more pessimistic approach to economics would note that unhappy customers (and their lawyers) will search for others to hold accountable. The corporations that planned, designed, built and sold the properties, knowing of the risks ahead, will be prime targets.

Neither the lawsuits, nor even the disasters, have to happen. In Hans Brinker's famous story, the Little Dutch Boy – despite knowing that he would be late for school -- puts his finger in the dyke, stopping the trickle of water, and saving his community from a catastrophe. Professionals and businesses in real estate related industries need to demonstrate a similar degree of awareness and self-sacrifice. Collectively, they all need to focus on the long-term sustainability of the community, even if it means forgoing a short-term profit opportunity.

Many companies and professionals have already pursued the ethical and responsible path. Google abandoned its support for the American Legislative Exchange Council, taking issue with its opposition to climate change policies.²²¹ Sustainability of the coastline has been embraced as a principle of corporate social responsibility, and developers routinely set aside lands for environmental conservation.²²² The Urban Land Institute, an 80-year old international interdisciplinary organization dedicated to “creating and sustaining thriving communities worldwide,” even published its Ten Principles for Coastal Development, offering guidance for land use developers.²²³ Many of the principles focus

221. See Brian Fung, *Google: We're Parting with the Climate Change Skeptics at ALEC*, WASH. POST (Sept. 22, 2014), <http://www.washingtonpost.com/blogs/the-switch/wp/2014/09/22/google-were-parting-with-the-climate-change-skeptics-at-alec/> (“Google had initially supported ALEC over an ‘unrelated’ issue, Schmidt told Rehm. But ALEC’s stand on climate change convinced Google to pull its support.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

222. See Kamille Wolff Dean, *Corporate Social Responsibility and Conservation: The Preservation of Ecology and Culture to Sustain the Sea Islands*, 37 WM. & MARY ENVTL. L. & POL’Y REV. 375, 375 (2013) (“Reformed corporate land use techniques that reflect prudent and sustainable master-planned communities may result in manageable natural and cultural resource preservation.”).

223. See MICHAEL PAWLUKIEWICZ, ET AL., URBAN LAND INSTITUTE, TEN PRINCIPLES FOR COASTAL DEVELOPMENT, at v (2007), available at www.uli.org/wp-content/uploads/ULI-Documents/Ten-Principles-for-Coastal-

on safety and sustainability.²²⁴ The tenth principle – “Commit to Stewardship That Will Sustain Coastal Areas” – provides a noteworthy insight on the role of corporations in coastal development.²²⁵ Achieving sustainable development, the Urban Land Institute explains, requires the corporation to become a partner with the public sector and the community as a whole:

To effectively implement a program of sustainable development, the community must share a vision of its future. This vision involves a strategy for implementation, which includes funding mechanisms (public and private), potential partners (and their responsibilities), and an agenda or time frame for achieving the vision. One way to implement the strategy to achieve the vision is to build partnerships that maximize benefits for the community and the environment. A partnership is a process, not a product. Successful navigation through the process results in benefits for all parties.²²⁶

Development.pdf (“The principles are intended to guide decision makers, citizens, public officials, planners, developers, and others in the creation of places that build community, enrich the economy, and protect the environment.”) (on file with the WASHINGTON AND LEE JOURNAL OF ENERGY, CLIMATE, AND THE ENVIRONMENT).

224. See *id.* at 1 (“The ten principles are (1) Enhance Value by Protecting and Conserving Natural Systems; (2) Identify Natural Hazards and Reduce Vulnerability; (3) Apply Comprehensive Assessments to the Region and Site; (4) Lower Risk by Exceeding Standards for Siting and Construction; (5) Adopt Successful Practices from Dynamic Coastal Conditions; (6) Use Market-Based Incentives to Encourage Appropriate Development; (7) Address Social and Economic Equity Concerns; (8) Balance the Public’s Right of Access and Use with Private Property Rights; (9) Protect Fragile Water Resources on the Coast; and (10) Commit to Stewardship That Will Sustain Coastal Areas.”).

225. See *id.* at 28 (“Sustainable development respects complexity by taking into account the fact that ecological, economic, and social systems are interconnected.”).

226. See *id.* at 29. (“Public sector entities can leverage and maximize public assets, increase their control over the development process, and create a vibrant built environment. Private sector entities are given greater access to land and receive more support throughout the development process.”).

Unfortunately, the voluntary conduct of an honorable few will not suffice. In the absence of a well-planned, coordinated, and comprehensive public and private sector response to the real threats of sea level rise, the entire community will remain at risk. Ethical leadership must emerge. Everyone in the real estate industry – especially in South Florida and Coastal Virginia – needs to start insisting upon an open and honest dialogue about the problems that lie ahead, holding each other to the highest standards of ethics and corporate social responsibility. The status quo – allowing some to engage in blissful or intentional ignorance, or worse yet, in tortious misconduct and denials – is unacceptable. Whether physical or metaphysical, one breach in the levee means widespread suffering.

VI. Conclusion

Despite deep concerns about climate change and sea level rise, communities have not abandoned the coastlines: nor should they. Humanity is inextricably connected to the oceans. It is our essential natural resource, a provider of air and rain, food and medicine, energy and minerals, transportation, industry and recreation. This article is not intended to rewrite our history, to halt our economy, nor to declare defeat. Rather, it is a call for caution and conscientious action.

The law has not provided a clear solution to sea level rise. As a result, many real estate professionals engaged in activities in South Florida and Coastal Virginia will deflect criticisms by pointing to their adherence to the legal requirements. But legal does not mean ethical or moral. Basic human rights are at stake, as the Republic of the Marshall Islands warned in a petition to the United Nations. An excerpt from that document, with modest revisions to the geographical references, applies just as readily to South Florida and Coastal Virginia:

[Coastal communities] face critical economic and development challenges. They are highly vulnerable to the physical impacts of sea level rise, and these impacts can have a direct and substantial negative effect upon basic human rights. While important adaptation strategies are being pursued, [Florida and Virginia] face financial

and capacity challenges regarding their implementation. In addition, long-term adaptation strategies are difficult to realize in the face of potentially drastic sea level rise predictions.²²⁷

Sea level rise presents acute risks to coastal communities. Eventually, the discussion must transition from abstract risks to realistic policy. Communities must decide whether and when to retreat or fortify, and those decisions could mean economic losses or even financial ruin for local residents and property owners. Recognizing this future, real estate professionals must live up to their own mandatory and aspirational professional standards. The ethics and professionalism of every project must be considered, taking into consideration not only the short-term profits on a project, but also the long-term existence of the community around it. Ethical behavior by the real estate industry means informing and protecting the people, partnering with the public sector leaders, and ensuring a resilient community with a sustainable future.

227. This paragraph echoes the phrasing in the Executive Summary of the Republic of the Marshall Islands petition to the United Nations, which read as follows: “The Republic of the Marshall Islands is a small island developing state which consists of many low-lying atolls. The nation faces critical economic and development challenges. The nation is highly vulnerable to the physical impacts of climate change; these impacts have a direct and substantial negative effect upon basic human rights. While important adaptation strategies are being pursued, RMI faces financial and capacity challenges regarding their implementation. In addition, long-term adaptation strategies are difficult to realize in the face of potentially drastic sea level rise predictions. As such, to preserve basic human rights, urgent international action and individual accountability from all nations.”