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CONSERVATION AND HUNTING: TILL DEATH DO THEY PART? A LEGAL ETHNOGRAPHY OF DEER MANAGEMENT

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"Our hunters [are] conservationists, first and foremost."
---Gordon Batcheller, Chief Wildlife Biologist[1]

Claims that hunters are exemplar conservationists would likely come as a surprise to many. Hunters, after all, *kill* animals. Isn't there a better way to appreciate wildlife than to kill and consume it? Yet there is no mistake: wildlife managers frequently make the claim that hunters, in the United States at least, are in fact some of the greatest conservationists. This article explores the complex historical and contemporary entanglements between hunting and wildlife conservation in the United States from a regulatory perspective. Such entanglements are multifaceted: hunting provides substantial financial support for conservation and

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1. Telephone Interview with Gordon Batcheller, Chief Wildlife Biologist, Bureau of Wildlife, New York State Dep't of Env'l Conservation (Aug. 8, 2014); In-person Interview with Gordon Batcheller, Buffalo, NY (Aug. 8, 2014). [Hereinafter Interview with Gordon Batcheller (Aug. 8, 2014)].

hunters are the state's primary tools for managing "big game" populations. Additionally, many wildlife officials are themselves hunters, and wildlife management programs are often geared toward the interests of hunters. Statutes, regulations, and governmental policies have been set in place that both reflect and reinforce this intimate relationship. This article draws on seven in-depth, semi-structured interviews, mainly with government wildlife managers, as well as on my own participatory observations accompanying a wildlife manager on a hunting trip, to trace the interconnections between hunting and conservation and the detailed regulatory regimes that have emerged around them. The management of the white-tailed deer in New York State will serve as a case study for these explorations of how American wildlife officials think about, and practice, their work of governing wildlife hunting.

I. INTRODUCTION

Claims that hunters are exemplar conservationists would likely come as a surprise to many. Hunters, after all, *kill* animals. Isn't there a better way to appreciate wildlife than to kill and consume it? Yet there is no mistake: wildlife managers frequently make the claim that hunters, in the United States at least, are in fact some of the greatest conservationists.[2] In the words of one ethnographer: "[H]unters are described as the vanguard of conservation, true environmentalists, bound by a code of honor that respects property, the nobility of wild animals, and the safety of other hunters and non-hunters alike."[3]

Many scholarly texts exist that examine various aspects of hunting, and its ethical aspects in particular.[4] This article diverges from those texts in that it does not focus on ethical questions, at least not explicitly. Instead, I explore the complex historical and contemporary entanglements between hunting and wildlife conservation from a regulatory standpoint. Such entanglements, I

2. "Regulated hunting is the foundation of the North American Model of Wildlife Conservation." James R. Heffelfinger, Valerius Geist & William Wishart, *The Role of Hunting in North American Wildlife Conservation*, 70(3) INT'L J. ENVTL. STUDIES 399, 399 (2013).

3. JAN E. DIZARD, GOING WILD: HUNTING, ANIMAL RIGHTS, AND THE CONTESTED MEANING OF NATURE 98–99 (1999).

4. *See, e.g.*, Robert W. Loftin, *The Morality of Hunting*, 6 ENVTL. ETHICS 241 (1984); Ann S. Causey, *On the Morality of Hunting*, 11 ENVTL. ETHICS 327 (1989); Marc Bekoff & Dale Jamieson, *Sport Hunting as an Instinct: Another Evolutionary "Just-So-Story?",* 13 ENVTL. ETHICS 59 (1991); MATT CARTMILL, A VIEW TO A DEATH IN THE MORNING: HUNTING AND NATURE THROUGH HISTORY (1993); TED KERASOTE, BLOODTIES: NATURE, CULTURE, AND THE HUNT (1994); JAMES A. SWAN, IN DEFENSE OF HUNTING (1995); Jordan Curnutt, *How to Argue for and against Sport Hunting*, 27(2) J. SOC. PHIL. 65 (1996).

will show here, are multifaceted: hunting provides substantial financial support for conservation and hunters are the primary tools for managing populations of "big game"—namely, large nonhuman animals targeted for recreational hunting. Additionally, many wildlife officials are themselves hunters, and wildlife management programs are often geared toward the interests of hunters. Statutes, regulations, and governmental policies have been set in place that both reflect and reinforce this intimate relationship. This article studies these regulatory norms closely in order to discern how American wildlife officials think about, and practice, their work of governing wildlife hunting.

While there is rich academic literature, especially in anthropology, on hunting practices,[5] little attention has been paid to the hunting of wild animals for sport and recreation,[6] and even less attention—if any—has been paid to this practice from the perspective of wildlife managers. This article draws on seven in-depth, semi-structured interviews, mainly with government wildlife managers, as well as on my own observations of hunting as I accompanied a hunter/wildlife manager, to trace the interconnections between hunting and conservation and the detailed regulatory regimes that have emerged to govern them. The management of the white-tailed deer (*Odocoileus virginianus*) in New York State will serve as a case study for these explorations.

II. SPORT HUNTING IN THE MODERN UNITED STATES

The expansion of the railroad in nineteenth century United States brought about rapid population declines in a variety of species.[7] Two striking examples of this decline are the American bison and the passenger pigeon, at the time the most abundant vertebrates in North America.[8] The passenger pigeon became extinct in 1916; the bison was on the brink of extirpation.

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5. The literature on hunting in anthropology is vast and largely focuses on non-Western societies. See, *e.g.*, MAN THE HUNTER (Richard B. Lee & Irven Devore, eds. 1968); THE OXFORD HANDBOOK OF THE ARCHAEOLOGY AND ANTHROPOLOGY OF HUNTER-GATHERERS (Vicki Cummings, Peter Jordan, & Marek Zvelebil, eds. 2014).

6. Although there are notable exceptions, see, *e.g.,* JAN E. DIZARD, GOING WILD: HUNTING, ANIMAL RIGHTS, AND THE CONTESTED MEANING OF NATURE (1999); JAN E. DIZARD, MORAL STAKES: HUNTERS AND HUNTING IN CONTEMPORARY AMERICA (2003); MARC A. BOGLIOLI, *ILLEGITIMATE KILLERS: THE SYMBOLIC ECOLOGY AND CULTURAL POLITICS OF COYOTE-HUNTING TOURNAMENTS IN ADDISON COUNTY, VERMONT*, 34(2), ANTHROPOLOGY AND HUMANISM, 203–218 (2009); MARC A. BOGLIOLI, A MATTER OF LIFE AND DEATH: HUNTING IN CONTEMPORARY VERMONT (2009).

7. DIZARD, *supra* note 3, at 18.

8. JIM POSEWITZ, BEYOND FAIR CHASE: THE ETHIC AND TRADITION OF HUNTING 11–12 (Globe Pequot Press 1994).

According to Jim Posewitz—who founded "Orion–The Hunter's Institute" after a career in conservation—the dramatic decline of the herds and flocks that once darkened the landscape led to an "awful loneliness."[9] In reaction, a small but powerful group of environmentally concerned hunters began advocating for legislation that would limit commercial hunting to allow wildlife to recover.[10] New government agencies were established at the same time to administer these early laws.

In 1911, the New York Department of Conservation was established for the purpose of fish and wildlife management. In 1970, the State legislature combined this and other State environmental programs into a single department: the Department of Environmental Conservation (hereinafter, the DEC).[11] Since then, the DEC has undertaken diverse projects, including the development of a New York State endangered species list, the restoration of bald eagles throughout New York, and the establishment of an integrated solid waste management plan.[12] The roots of New York State conservation legislation go back to 1885, when the State appointed "game protectors"—the first officers to enforce state game laws and also New York's first statewide law enforcement professionals, predating the State's police force by twenty seven years.[13]

Gordon Batcheller is chief wildlife biologist for the Division of Fish, Wildlife, and Marine Resources of the DEC. Batcheller recounts: "120 years ago in the United States, wildlife populations were in very bad shape . . . . Vast landscapes of forest cover were removed, and we lost, or nearly lost, several important wildlife species. White-tailed deer were at very low numbers, wild turkey were at very low numbers, black bear were at very low numbers—that was the situation."[14] Later, the President of the United States, Teddy Roosevelt, himself a hunter, advocated legal changes for the protection of wildlife species.[15] Batcheller summarizes: "When wildlife populations were really facing extirpation, hunters were the ones who went to the legislatures . . . and said 'We've got to

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9. *Id*. at 12.

10. DIZARD, *supra* note 3, at 18.; Thomas L. Altherr, *The American Hunter-Naturalist and the Development of the Code of Sportsmanship*, 5(1) J. SPORT HIS. 7, 7 (1978).

11. Environmental Conservation Law, 1970 N.Y. Sess. Laws 185 (McKinney). N.Y. DEP'T ENVTL. CONSERVATION, HISTORY OF DEC, http://www.dec.ny.gov/about/9677.html (last visited Oct. 3, 2014).

12. N.Y. DEP'T ENVTL. CONSERVATION, HISTORY OF DEC AND HIGHLIGHTS OF ENVIRONMENTAL MILESTONES, http://www.dec.ny.gov/docs/administration_pdf/dectimeline.pdf (last visited Oct. 3, 2014).

13. N.Y. DEP'T ENVTL. CONSERVATION, HISTORY OF DEC, *supra* note 11.

14. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

15. *Id.*

close these seasons, we've got to protect these birds and mammals.'"[16]

Clubs formed by early hunters championed an ethic of recreational hunting often referred to as "the Code of the Sportsman."[17] Historian Thomas Altherr describes: "The hunter-naturalists viewed hunting as the best mode of environmental perception, the truest appreciation and apprehension of nature's ways and meanings."[18] These elite hunter-conservationists were critical of both commercial hunting (which they referred to as "pot-hunting") and unrestrained sport hunting ("hunter-slobs").[19] Sportsmen's clubs were also central instigators of wildlife conservation as a field of scientific study. Scientific census and strategies for the management of "game" populations were developed to allow huntable wildlife to flourish for the use of humans in a form of "resource managerialism" that some have referred to as "environmentality"—the use of environmental knowledge/power to exercise control over populations and to produce environmentally-minded subjects (in the Foucauldian sense).[20] Only later would wildlife science concern itself also with non-game wildlife. Contemporary state wildlife officials and wildlife management practices are thus the direct descendants of the legacy of early hunter-conservationists and the science of population management that they helped promote. "Regulated hunting and trapping have been cornerstones of wildlife management in the United States since the advent of wildlife conservation," write two prominent zoologists along these lines.[21]

Anthropologist Garry Marvin argues that sport hunting is "a complex and serious ritual activity."[22] He explains that whereas the hunter for food does all in his or her power "to minimize the

16. *Id.*

17. *Id.*; Altherr, *supra* note 10, at 7.

18. Altherr, *supra* note 10, at 7.

19. *Id.*

20. TIMOTHY W. LUKE, *On Environmentality: Geo-Power and Eco Knowledge in the Discourses of Contemporary Environmentalism*, 31 CULTURAL CRITIQUE 57–81, 70–71 (1995). *See also* ARUN AGRAWAL, ENVIRONMENTALITY: TECHNOLOGIES OF GOVERNMENT AND THE MAKING OF SUBJECTS (2006).

21. Robert M. Muth & Wesley V. Jamison, *On the Destiny of Deer Camps and Duck Blinds: The Rise of the animal Rights Movement and the Future of Wildlife Conservation*, 28(4) WILDLIFE SOC'Y BULLETIN 841, 841–851 (2000). According to these authors: "When viewed in its most comprehensive form . . . [this model] came to include regulated use by hunters and trappers based on sportsmanship and fair chase; funding support provided through license fees, duck stamps, and excise taxes on hunting and fishing equipment; acquisition and rehabilitation of important habitat; intensive management based on professional training and scientific research; species introduction and restoration through stocking and trap-and-transfer programs; protection of species perceived to be in danger of becoming extinct; and enforcement of wildlife laws and regulations." *Id.* at 843.

22. Garry Marvin, *Wild Killing: Contesting the Animal in Hunting*, *in* ANIMAL STUDIES GROUP, KILLING ANIMALS 10, 19 (1996).

nature of . . . the contest in order to obtain meat in the most efficient and effective way possible," the sport hunter intentionally seeks out and elaborates this contest. "Rules, regulations, and restrictions are imposed and willingly followed to create the challenges that are fundamental for hunting to be a sporting activity," he adds.[23] The sportsmen's movement was especially influenced by the rules of "fair chase."[24] According to Posewitz, "This concept addresses the balance between hunters and hunted, which allows hunters to occasionally succeed while animals generally avoid being taken."[25]

Hunting norms differ across place and time. For example, although baiting restrictions can be interpreted as ensuring that the balance is not tipped in favor of the hunter,[26] their implementation is not even across the board. "It's cultural," explains Paul Curtis, an associate professor in the Department of Natural Resources at Cornell University, regarding the differences between hunting norms in various states.[27] For example, "Most of the northeastern states don't allow baiting, [while] in the southeast most states do."[28] According to the national bow hunting organization the Pope and Young Club:

> [t]he term 'Fair Chase' shall not include the taking of animals under the following conditions:
> 1. Helpless in a trap, deep snow or water, or on ice.
> 2. From any power vehicle or power boat.
> 3. By "jacklighting" or shining at night.
> 4. By the use of any tranquilizers or poisons.
> 5. While inside escape-proof fenced enclosures.
> 6. By the use of any power vehicle or power boats for herding or driving animals, including use of aircraft to land alongside or to communicate with or direct a hunter on the ground . . . .[29]

Heavily influenced by the sportsmen's movement, New York State's hunting laws have similarly deemed it illegal to kill a deer

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23. *Id.*

24. John F. Organ et al., *Fair Chase and Humane Treatment: Balancing the Ethics of Hunting and Trapping*, *in* TRANSACTIONS OF THE 63RD NORTH AMERICAN WILDLIFE AND NATURAL RESOURCES CONFERENCE 528, 528 (K. G. Wadswoth 3d. ed. 1998).

25. POSEWITZ, *supra* note 8, at 57.

26. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

27. Interview with Paul Curtis, Associate Professor, Dep't of Natural Res., Cornell Univ., Ithaca, N.Y. (Feb. 03, 2014). [Hereinafter Interview with Paul Curtis].

28. *Id.* In New York, it is illegal to hunt over bait. N.Y. ENVTL. CONSERV. LAW § 11–0901(4)(b)(7) (McKinney 2005 & Supp. 2014).

29. POPE & YOUNG CLUB, THE RULES OF FAIR CHASE, http://www.pope-young.org/fairchase/default/asp (last visited Oct. 4, 2014).

in water,[30] from a motor vehicle,[31] with the use of a "jacklight,"[32] or with the use of tranquilizers or poisons.[33] Shortened hunting seasons and the imposition of "bag limits" (explained below) are additional manifestations of the fair chase ethic, not only in the sense that they restrict the number of hunted deer and confine their killing to when they are theoretically least vulnerable, but by democratizing deer access between hunters.[34]

Anthropologist Matt Cartmill explains that:

> Hunting in the modern world is not to be understood as a practical means of latching onto some cheap protein. It is intelligible only as symbolic behavior, like a game or religious ceremony. . . . A successful hunt ends in the killing of an animal, but it must be a special sort of animal that is killed in a specific way for a particular reason.[35]

Marvin further elaborates on the definition of sport hunting: "The animal must be free to escape, there must be direct physical violence, it must be premeditated, and it must be at the hunter's initiative."[36] As hunting technologies and weapons (the latter referred to by wildlife managers as "implements") have become more effective, sport hunters have had to impose voluntary restrictions on their ability to hunt in order to give the animal a chance to escape and "not to make the hunted and the hunter excessively unequal, as if going beyond a certain limit in that relationship would annihilate the essential character of the hunt, transforming it into pure slaughter and destruction."[37]

III. FINANCIAL CODEPENDENCY

Hunting fees provide a large portion of the funding for wildlife conservation and habitat protection at both the state and the federal levels, enabling the conservation of both game (huntable) animals, such as deer and turkey, and non-hunted wildlife. "There'd be very little money to do wildlife conservation without

30. N.Y. ENVTL. CONSERV. LAW § 11–0901(4)(a) (McKinney 2005 & Supp. 2014).
31. N.Y. ENVTL. CONSERV. LAW § 11–0901(1) (McKinney 2005 & Supp. 2014).
32. N.Y. ENVTL. CONSERV. LAW § 11–0901(4)(b)(2) (McKinney 2005 & Supp. 2014).
33. *See* N.Y. ENVTL. CONSERV. LAW § 11-0901(3)(f) (McKinney 2005 & Supp. 2014).
34. Scott M. McCorquodale, *Cultural Contexts of Recreational Hunting and Native Subsistence and Ceremonial Hunting: Their Significance for Wildlife Management,* 25(2)WILDLIFE SOC'Y BULLETIN 569, 569 (1997).
35. CARTMILL, *supra* note 4, at 29.
36. Marvin, *supra* note 22, at 20.
37. *Id.* (quoting JOSE ORTEGA Y GASSET, LA CAZA Y LOS TOROS 410 (1968)).

the support of the hunting community,"[38] notes Batcheller of the DEC, an avid hunter himself. And yet, he adds, "The wildlife conservation work that we do is much more than managing hunting or benefiting hunters. We do a lot of work with a wide variety of species that are not hunted."[39]

The financial links between hunting and conservation were established through a range of laws enacted in the 1930s that tax hunting equipment such as firearms and that charge license fees to grant hunters permission to kill ("take" or "harvest," in the language of wildlife managers) wild animals. Additionally, millions of dollars are spent annually on habitat protection and restoration by private hunting organizations across the United States.[40]

In the 1930s President Franklin Roosevelt signed two laws that have since served as the cornerstone of wildlife funding: the Migratory Bird Hunting and Conservation Stamp Act, commonly referred to as the Duck Stamp Act,[41] and the Federal Aid in Wildlife Restoration Act of 1937, also called the Pittman–Robertson Act.[42] Initially, the Migratory Bird Conservation Act of 1929[43] authorized purchase of wetlands for waterfowl populations to rebound.[44] In 1934, the Duck Stamp Act newly required the purchase of federally issued stamps to hunt waterfowl.[45] Revenues from these purchases are deposited in the Migratory Bird Conservation Fund.[46] This way, the Duck Stamp Act funded the purchase, by the Secretary of the Treasury, of migratory bird refuges, and of wetlands in particular. National wildlife refuges have been imperative for the protection of waterfowl.

In 1937, President Roosevelt signed into law the Pittman–Robertson Act. This Act funneled the revenue from the existing tax on firearms to a separate Federal Aid to Wildlife Restoration Fund[47] administered by the Secretary of the Interior.[48] Today, the

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38. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

39. *Id.*

40. DUCKS UNLIMITED, DUCKS UNLIMITED CONSERVATION INITIATIVES, http://www.ducks.org/conservation/conservation-initiatives/conservation-initiatives?poe=hometxt (last visited Dec. 15, 2014); ROCKY MOUNTAIN ELK FOUNDATION, LAND PROTECTION, http://www.rmef.org/Conservation/HowWeConserve/LandProtection.aspx (last visited Dec. 15, 2015).

41. Migratory Bird Hunting and Conservation Stamp Act, 16 U.S.C. §§ 718–18j (2012).

42. Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), 16 U.S.C. § 669 et seq. (2012).

43. 16 U.S.C. § 715 et seq. (2012).

44. U.S. FISH & WILDLIFE SERV., DIGEST OF FEDERAL RESOURCE LAWS OF INTEREST TO THE U.S. FISH AND WILDLIFE SERVICE: MIGRATORY BIRD CONSERVATION ACT, https://www.fws.gov/laws/lawsdigest/MIGBIRD.HTML (last visited Aug. 28, 2014).

45. Migratory Bird Hunting and Conservation Stamp Act, *supra* note 41.

46. U.S. FISH & WILDLIFE SERV., DIGEST OF FEDERAL RESOURCE LAWS OF INTEREST TO THE U.S. FISH AND WILDLIFE SERVICE: MIGRATORY BIRD HUNTING AND CONSERVATION STAMP ACT, http://www.fws.gov/laws/lawsdigest/mighunt.html (last visited Aug. 15, 2014).

47. 16 U.S.C. § 669b (2012).

taxes directed into this fund include a 10 percent tax on pistols and revolvers,[49] an 11 percent tax on bows, archery equipment,[50] and long arms,[51] and an inflation adjusted tax on arrow shafts, standing at 48 cents per shaft in 2014.[52] Half of the funding allocated to each state is based on the size of its territory in proportion to that of all the states, and the other half is based on the number of paid hunting license holders in each state in proportion to the total number of the paid hunting license holders in the United States.[53] A similar law, albeit with a more narrow focus, exists for fishermen buying fishing gear.[54] States may use Pittman–Robertson funds to pay for up to 75 percent of the costs of state wildlife projects.[55] The Pittman-Robertson tax applies to all firearms, not only those used for hunting. It follows that a certain percentage of wildlife conservation funding can be traced back to firearms purchased for other reasons than hunting, including target shooting and personal protection. In recent years, fear of impending stricter gun control laws, especially in the aftermath of mass shootings, has resulted in an increase in firearm purchases, pushing the annual Pittman-Robertson funds to new levels.[56]

The dependency of conservation funding on firearm purchases is not without problems. First, it significantly relies on purchases of firearms that will never be used for hunting by individuals who are not necessarily aware of, and who do not necessarily support, hunting. Second, a large percentage of individuals who only participate in non-hunting outdoor activities, e.g. hiking and bird

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48. 16 U.S.C. § 669 (2012).
49. 26 U.S.C. § 4181 (2012).
50. 26 U.S.C. § 4161 (2012).
51. 26 U.S.C. § 4181 (2012).
52. 26 U.S.C. § 4161 (2012).
53. 16 U.S.C. § 669c (2012).
54. U.S. FISH & WILDLIFE SERV., DIGEST OF FEDERAL RESOURCE LAWS OF INTEREST TO THE U.S. FISH AND WILDLIFE SERVICE: FEDERAL AID IN SPORT FISH RESTORATION ACT, http://www.fws.gov/laws/lawsdigest/FASPORT.HTML (last visited Aug. 15, 2014).
55. U.S. FISH & WILDLIFE SERV., DIGEST OF FEDERAL RESOURCE LAWS OF INTEREST TO THE U.S. FISH AND WILDLIFE SERVICE: FEDERAL AID IN WILDLIFE RESTORATION ACT, http://www.fws.gov/laws/lawsdigest/FAWILD.HTML (last visited Aug. 15, 2014); NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, MANAGEMENT PLAN FOR WHITE-TAILED DEER IN NEW YORK STATE, 2012-2016, 11 (2011) *available at* http://www.dec.ny.gov/docs/wildlife_pdf/deerplan2012.pdf [hereinafter DEC DEER MANAGEMENT PLAN].
56. The total Pittman-Robertson funds increased from under 350 million dollars in the fiscal year before President Obama's election to almost 500 million dollars in 2009. *See* M. LYNNE CORN & JANE G. GRAVELLE, CONG. RESEARCH SERV., R42992, GUNS, EXCISE TAXES, AND WILDLIFE RESTORATION, at 2 (2013). In 2014, the funds reached an all-time high of 740.9 million dollars (not including an additional 20 million dollars resulting from sequestered funds being returned). *See* Press Release, Sally Jewell, U.S. Fish & Wildlife Serv., Secretary Jewell Announces $1.1 Billion to State Wildlife Agencies from Excise Taxes on Anglers, Hunters, and Boaters (Mar. 26, 2014), available at http://www.fws.gov/southeast/news/2014/026.html.

watching, reap the benefits of Pittman-Robertson funded projects without making the financial contributions that hunters do.[57]

While wildlife conservation expenditures vary from state to state, hunter derived funds make up a significant portion of these expenditures in every state. In Texas, for example, 97 percent of the State's wildlife conservation funding is attributable to hunters—either directly, by hunting licenses, stamps, and fees, or indirectly through Pittman-Robertson funding.[58] Maryland received about 90 percent of the revenue spent on wildlife programs from these same two sources.[59] Commenting on the significance of the Pittman-Robertson funds in New York State, Gordon Batcheller says that they are used to "fund much of the wildlife conservation work we do—and not just related to game species. For example, in New York we restored the bald eagle actually with monies ultimately raised through the sale of firearms and ammunition."[60] "That's what funds our conservation," explains Jay Boulanger, formerly the coordinator of Cornell University's Integrated Deer Research and Management Program.[61]

In New York State, hunting, fishing, and trapping license sales generate 47 million dollars annually.[62] This money is deposited into the Conservation Fund and allocated in accordance with the Environmental Conservation Law for the care, management, protection and enlargement of fish and game resources.[63] Expenditures from the Conservation Fund must be related to fish and wildlife resources. Although some are exclusively committed

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57. According to Paul Curtis, the few attempts by conservation organizations to obtain dedicated federal funding for non-game wildlife have failed. *See, e.g.,* Conservation and Reinvestment Act, H.R. 701, 106th Cong. (1999). Additionally, he says, "several states have tax check-offs for non-game funding, but those bring in very little money. Missouri Department of Conservation is one of the few states that have a dedicated tax that provides funding for non-game wildlife." E-mail from Paul Curtis, Assoc. Professor, Dep't of Natural Res., at Cornell University, to Irus Braverman (Oct. 14, 2014, 16:08 EDT) (on file with author).

58. *News from the Prairie Chicken Front*,, *Adopt-a-Prarie Chicken Newsletter* (Tex. Parks & Wildlife Dep't). (Summer 2011), *available at* http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_br_w7000_0039d_06_11.pdf.

59. Md. Dep't of Natural Res., Wildlife and Heritage Service, http://www.dnr.state.md.us/wildlife/wlfunding.asp (last visited Oct. 3, 2014). But these funds only make up about 10 percent of Montana's Fish, Wildlife, and Parks Department budget. LEGISLATIVE ENVTL. QUALITY COUNCIL, PITTMAN-ROBERTSON FUNDING (2013), *available at* http://leg.mt.gov/content/Publications/Environmental/2014-pittman-robertson-brochure.pdf.

60. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

61. Interview with Jay Boulanger, Coordinator, Integrated Deer Research and Mgmt. Program, Cornell Univ., in Ithaca New York (Dec. 20, 2013) [Hereinafter Interview with Jay Boulanger]; Participatory observation of hunting, Ithaca, N.Y. (Jan. 30, 2014).

62. *Feb. 4th, 2013 Joint Legislative Public Hearing on 2013–2014 Executive Budget "Environmental Conservation"* (2013) (statement of Jason Kemper, Chairman, NYS Conservation Fund Advisory Bd. on Balance in the Conservation Fund) *available at* http://www.dec.ny.gov/docs/wildlife_pdf/cfabfintestfeb413.pdf.

63. N.Y. STATE FIN. LAW § 83(a)(1) (McKinney 2014).

to providing hunting opportunities, many expenditures of the Conservation Fund aid in promoting conservation more broadly.[64] Such expenditures include salaries for environmental conservation law enforcement officers, fish and wildlife population management programs, and habitat management and improvement programs.[65] In recent years, expenditures from the Conservation Fund have comprised nearly 60 percent of the total expenditures by the DEC's Division of Fish, Wildlife and Marine Resources.[66]

While there is significant flexibility in how states spend Pittman-Robertson funds, some strings are attached. For example, a state must prepare specific proposals for federal grants and match at least 25 percent of the Pittman-Robertson funds.[67] Otherwise, states have complete discretion in crafting their grant proposals and are not required to show that they primarily benefit hunting.[68] Ultimately, conservationists and hunters exist in a codependent relationship: while state conservation agencies depend on hunting for their funding, hunters must rely on state permission to hunt because, in the United States, animals in the wild are typically "owned" by the various states.

IV. THE PUBLIC TRUST DOCTRINE

The public trust doctrine is the legal foundation for state ownership of certain natural resources, including wildlife, in the United States. This doctrine has origins in Roman law, which declared in 533 C.E.: "[b]y natural law, these things are common property of all: air, running water, the sea, and with it the shores

64. DIV. STATE & GOV'T ACCOUNTABILITY, N.Y. OFFICE OF THE STATE COMPTROLLER, CONSERVATION FUND – SOURCES AND USES OF FUNDS: DEP'T OF ENVT'L CONSERVATION, S. 134 (2013), *available at* http://osc.state.ny.us/audits/allaudits/093014/12s134.pdf.

65. *Id.* at 9.

66. CONSERVATION FUND ADVISORY BOARD, STATE OF NEW YORK, ANNUAL REPORT TO THE COMMISSIONER, SPORTSMEN AND SPORTSWOMEN, FOR THE PERIOD APR 1, 2010 TO MAR 31, 2011, at 18 (2012), *available at* http://www.dec.ny.gov/docs/wildlife_pdf/cfabannrept11.pdf.

67. 16 U.S.C. § 669c(d)(3) (2012).

68. 16 U.S.C. § 669c(d). The states receive their allocation of Pittman-Robertson funds as 75 percent pro-rata reimbursement for actual expenditures. Hence, a provision of the Fiscal Year 2011–12 New York State Budget that merely allowed for a diversion of committed funds (and no actual diversion occurred) would have prevented New York from receiving the funds had it not been amended. *See* Part BB §§12, 12-a, 13 Ch. 58, 2011 N.Y. Sess. Laws 239 (McKinney). In addition to the funding of state wildlife conservation from Pittman-Robertson allocations, the revenue from hunting license sales is often used to cover the state's 25 percent matching requirement. *See* U.S. FISH & WILDLIFE SERV., SE. REGION, FEDERAL AID DIVISION – THE PITTMAN-ROBERTSON FEDERAL AID IN WILDLIFE RESTORATION ACT, http://www.fws.gov/southeast/federalaid/pittmanrobertson.html (last updated Jan. 21, 2010).

of the sea."[69] The English common law modified this principle to assign ownership of common property to the king as a trustee for the benefit of the people.[70] Following the Revolutionary War, United States courts established that the public trust transferred from being vested in the king to being vested in the people of the various states, through their elected representatives.[71] Beginning with *Arnold v. Mundy*[72] and continuing to this day, state courts have typically invoked the public trust doctrine to preserve public access to waterways for the purpose of fishing and navigation.[73]

The common interpretation of the public trust doctrine by United States courts has been that wildlife is the property of the people and is held in trust by the state through its wildlife agencies, which in turn allocate hunting licenses to members of the public.[74] In 1842, the Supreme Court ruled along these lines that

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69. J. INST. 2.1.1-6 (J.B. Moyle ed. & trans., Oxford at the Clarendon Press 4th ed. 1906) (c. 533 C.E.)

70. THE WILDLIFE SOC'Y, THE PUBLIC TRUST DOCTRINE: IMPLICATION FOR WILDLIFE MANAGEMENT AND CONSERVATION IN THE UNITED STATES AND CANADA 11 (2010).

71. THE WILDLIFE SOC'Y, THE PUBLIC TRUST DOCTRINE: IMPLICATION FOR WILDLIFE MANAGEMENT AND CONSERVATION IN THE UNITED STATES AND CANADA 12 (2010); *Arnold v. Mundy*, 6 N.J.L. 1, 13 (1821).

72. *Arnold*, 6 N.J.L. at 1.

73. Erin Ryan, *Public Trust and Distrust: The Theoretical Implications of the Public Trust Doctrine for Natural Resource Management*, 31 ENVTL. L., 477, 481–82 (2001).

74. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1. Over time, successive court cases complicated the public trust doctrine. For example, in *Geer v. State of Connecticut* (1896), the Court ruled that: "The ownership of the wild game within the limits of a state, so far as it is capable of ownership, is in the state for the benefit of all its people in common" (161 U.S. 519, 16 S. Ct. 600, 601, 40 L. Ed. 793 (1896)). In 1904, the New York Court of Appeals ruled: "The game and the fish within the boundaries of the state belong to the people in their unorganized capacity, and may be taken by any citizen, without fee or license, at any time during the open season. It is to the interest of the state that neither should be wasted or destroyed, and that both should be carefully protected, especially during the breeding season. Without protection the fish and game will soon disappear, and the people thus be deprived of in important source of food supply, as well as a delightful recreation which promotes health and prolongs life. The protection of game falls within the legitimate exercise of the police power, because it is directly connected with the public welfare, which is promoted by the preservation and injured by the destruction of so useful an article of food, free at the proper time to all the people of the state. Laws passed for this purpose do not interfere with private property, for there is no property in living wild animals, and only as the law permits their capture is there property in wild animals after they are caught or killed." *People v. Bootman*, 180 N.Y. 1, 8, 72 N.E. 505, 507 (1904). These decisions established a legitimate state interest in wildlife conservation and in regulating the killing of wildlife. Importantly, ideas of private property have interacted with the public trust doctrine in complicated ways. In *McConico v. Singleton*, 1818 WL 787 (S.C. 1818), the Constitutional Court of Appeals of South Carolina ruled: "the owner of the soil, while his lands are unenclosed, cannot prohibit the exercise of it [hunting] to others," but in *Herrin v. Sutherland*, 241 P. 328, 332 (Mont. 1925), the Supreme Court of Montana ruled: "the exclusive right of *hunting* on land owned by a private owner is in the owner of the land." Finally, the Supreme Court of South Carolina declared that the landowner's right to hunt and fish on his property is subject to reasonable government regulations, as fish and game are owned by the state. *Rice Hope Plantation v. South Carolina Pub. Serv. Auth.*, 59 S.E.2d 132, 142 (S.C. 1950).

wildlife belonged to the people.[75] In our interview, U.S. Forest Service botanist Tom Rawinski offered similarly that: "We are a blessed country in that it was soon established that wildlife would be in the public trust. . . . This is counter to many countries in Europe many years ago where the wildlife belonged to the king or aristocracy."[76]

In 1970, law professor Joseph Sax criticized the traditional interpretation of the public trust doctrine by American courts and legislators. He argued, firstly, that it should be applied to a broader range of natural resources than just navigable waters and the seashore.[77] For this doctrine to be effective, he continued, it must respond to contemporary concerns, the general public must understand that it describes a legal right, and it must be enforceable against the government.[78] Its enforceability against the government is what, according to Sax, distinguishes the public trust doctrine from state ownership—although they are often mistakenly conflated with one another when applied to wildlife.[79] If one were to apply the public trust doctrine, as Sax conceives it, to wildlife, it would not just authorize the states to regulate hunting, which is a manifestation of the state's police powers that exist independent of the trust doctrine; it would additionally authorize the courts to enforce the state's *affirmative* duty to manage its wildlife for the benefit of current and future generations, for hunters and non-hunters alike.[80] Specifically, Sax argues that expanding the public trust's restricted scope would result in a major change in laws related to natural resources, which could include hunting laws.[81]

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75. *Martin v. Waddell's Lessee*, 41 U.S. 367, 367 (1842).

76. Telephone Interview with Tom Rawinski, Botanist, Forest Health Protection Program, Northeastern Area State and Private Forestry, United States Forest Service (July 31, 2014). [Hereinafter Interview with Tom Rawinski].

77. Joseph Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970). *See also* Ryan, *supra* note 73.

78. *Id.* at 474.

79. *See generally* Michael C. Blumm & Lucus Ritchie, *The Pioneer Spirit and the Public Trust: The American Rule of Capture and State Ownership of Wildlife*, 25 ENVTL. L. 713 (2005).

80. *Id.*

81. *See* Sax, *supra* note 77, at 555–56. For instance, a central premise of the public trust doctrine is unfettered and equal access to the resource held in trust by all citizens. This, however, stands in conflict with the funding model described above, whereby one group (hunters, fisherman, etc.) pays a disproportionate share for the conservation of wildlife, while others (bird watchers, for example) may have access to this resource without being required to pay. Daniel J. Decker et al., Public Trust Doctrine and Stakeholder Engagement 12 (Mar. 6, 2014) (unpublished manuscript) (on file with author). At the same time, wildlife management agencies are often viewed as catering to the concerns of hunters, instead of pursuing conservation goals more generally. *Id.* The model that currently informs the funding and function of wildlife management agencies might make sense from a public finance perspective, as hunters, in exchange for contributing a disproportionately large share of funding, receive a similarly disproportionate amount of influence in regards to

However, United States courts have generally hesitated to apply the public trust doctrine in an expansive manner. Instead, the responsibility for managing wildlife through statutes and regulations that have a basis in constitutional or legislative law has been left to the states.[82] In *Owsicheck v. Alaska*,[83] for example, the Alaska Supreme Court relied on the common use clause in the Constitution of Alaska, [84] rather than exclusively on common law principles,[85] to rule that public trust principles guarantee public access to fish and wildlife. Similarly, California's Supreme Court decided that the State's public trust duties regarding birds and wildlife are derived from statute.[86]

Although they differ from state to state, contemporary environmental statutes typically include a wildlife ownership clause. For example, New York State's Environmental Conservation Law establishes that: "The State of New York owns all fish, game, wildlife, shellfish, crustacean and protected insects in the state, except those legally acquired and held in private ownership."[87] The statute clarifies that the goal of the state ownership is management: "The general purpose of powers affecting fish and wildlife, granted to the department by the Fish and Wildlife Law, is to vest in the department, to the extent of the powers so granted, the efficient management of the fish and wildlife resources of the state."[88] In other words, the state owns non-private wildlife in order to efficiently manage it for the benefit of its people.[89]

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shaping state conservation policies. However, this model could also be perceived as a breach of the trust relationship between the state and its residents. This "user pays/payer benefits" model conflicts with the basic idea behind the public trust doctrine that all citizens have equal access and equal obligations in regards to natural resources held in trust by the state. *See id.*; *see also, generally*, Sax, *supra* note 77; Ryan, *supra* note 73.

82. THE WILDLIFE SOC'Y & THE BOONE AND CROCKETT CLUB, THE NORTH AMERICAN MODEL OF WILDLIFE CONSERVATION, TECHNICAL REVIEW 12–04, at 14 (2012).

83. *Owsicheck v. Alaska*, 763 P.2d 488, 49–96 (Alaska 1988).

84. "Wherever occurring in their natural state, fish, wildlife, and waters are reserved to the people for common use." ALASKA CONST. art. VIII, § 3.

85. *Owsicheck*, 763 P.2d at 495; *see also* THE WILDLIFE SOC'Y, THE PUBLIC TRUST DOCTRINE: IMPLICATION FOR WILDLIFE MANAGEMENT AND CONSERVATION IN THE UNITED STATES AND CANADA 23 (2010).

86. *Envtl. Prot. Info. Ctr. v. Cal. Dept. of Forestry & Fire Prot.,* 44 Cal. 4th 459 (2008); *see also* THE WILDLIFE SOC'Y, THE PUBLIC TRUST DOCTRINE: IMPLICATION FOR WILDLIFE MANAGEMENT AND CONSERVATION IN THE UNITED STATES AND CANADA 23 (2010).

87. N.Y. ENVTL. CONSERV. LAW § 11–0105 (McKinney 2005).

88. N.Y. ENVTL. CONSERV. LAW § 11–0303(1) (McKinney 2005 & Supp. 2014).

89. "[Ownership] is a trick[y] concept," Batcheller comments in our e-mail communication. "The State owns wildlife when wildlife is in the wild. But when lawfully possessed (e.g., after a hunting excursion), the carcass is owned by the hunter, if duly licensed." E-mail from Gordon Batcheller, Chief Wildlife Biologist, Bureau of Wildlife, New York State Department of Environmental Conservation, to Irus Braverman (Oct. 17, 2014, 13:52 EDT) (on file with author). [Hereinafter E-mail from Gordon Batcheller]

The State decides which wild animals, and how many, may be killed, and grants permission to kill accordingly. At the same time, wild animals who are not viewed as scarce or valuable are typically killable without the need for permits or licenses. Elsewhere, I described how New York State Environmental Conservation Law classifies animals as either "protected" or "unprotected."[90] This law declares, "[n]o person shall, at any time of the year, pursue, take, wound or kill [them] in any manner, number or quantity, except as permitted by . . ., except as permitted by . . . law.'"[91] Unprotected animals, meaning *all* animals *except* those that state law deems protected, are thus left outside of the law, in a state of exception that renders them subject to extermination.[92] At the same time, state law declares that "'[p]rotected wildlife' means wild game, protected wild birds [etc.]"[93] Protected wildlife may also mean "non-game" animals that are not hunted, but are still protected. In New York this includes reptiles and amphibians.[94]

Without laws that permit killing under certain circumstances, hunting would be illegal. Hunting laws should therefore not be viewed as restrictions on the right to kill deer (and other game animals). Instead, hunting represents an affirmative permit by the state to infringe upon state property (here, wild game animals), provided strict adherence to detailed regulations of who may hunt and what, when, where, and how they may do so. Alongside the historical and economic entanglements of conservation and hunting, hunting is also utilized as the government's primary population management tool. One of the clearest examples of this is the management of white-tailed deer in New York State.

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90. Irus Braverman, *Animal Mobilegalities: The Regulation of Animal Movement in the American City,* 5(1) HUMANIMALIA 104, 109 (2013).

91. *Id.* (quoting N.Y. ENVTL. CONSERV. LAW § 11–0107 (McKinney 2005 & Supp. 2014)). But according to Curtis, nearly all fish, wildlife, reptiles, and amphibians in NYS are protected by law; only a small list of unprotected wildlife exist. This list includes house sparrows, unbanded pigeons, European starlings, red squirrels, black and Norway rats, and house mice. "Even species like coyotes and woodchucks are protected in NYS," says Curtis. E-mail from Paul Curtis, *supra* note 57.

92. According to Batcheller: "Generally, the animals that are not protected by law are quite abundant, and not at risk of extirpation. An example would be wild mice (not house mice)." E-mail from Gordon Batcheller, *supra* note 89. For a critical discussion of this human property to make live and let die through legal protections *see* Braverman, *supra* note 90, at 10. English scholar and philosopher Cary Wolfe draws on Giorgio Agamben's HOMO SACER: SOVEREIGN POWER AND BARE LIFE (1998) and on Jacque Derrida's THE BEAST AND THE SOVEREIGN (2009) to contemplate the role of law in producing what Agamben calls the state of exception. *See* CARY WOLFE, BEFORE THE LAW: HUMANS AND OTHER ANIMALS IN A BIOPOLITICAL FRAME (2012).

93. N.Y. ENVTL. CONSERV. LAW § 11–0103(6)(c) (McKinney 2005 & Supp. 2014).

94. *Id.* at § 11-0103(6)(e)(5).

V. MANAGING WHITE-TAILED DEER

"People ask: What's the most dangerous animal in North America? [I'd say that] it's the white-tailed deer, by far."
---Paul Curtis, Cornell University, interview[95]

Contrary to *Bambi*'s image as cute and harmless, wildlife managers see the increase in deer populations in many areas as a cause for serious concern. Batcheller explains: "we spend a significant amount of time and effort on deer management because of the enormous economic, social, political, [and] ecological significance of the deer herd."[96] This management is immensely complex. Rawinski tells me that the DEC is "feeling the pressure from all sides . . . the animal welfare folks . . . the hunters . . . the average citizens complaining about Lyme disease . . . the farmers, and there are the forest woodlot owners who say 'We can't grow baby trees anymore.' It's a really complex issue."[97]

A. Causes for Increase

An estimated[98] one million individual deer lived in New York State in 2014, a vast increase in comparison to one hundred, or even fifty, years ago.[99] Several causes are behind this dramatic rise

95. Interview with Paul Curtis, *supra* note 27.
96. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.
97. Interview with Tom Rawinski, *supra* note 76.
98. Estimating the exact number of the deer herd in New York is far from an easy task. According to Boulanger: "[I]t's truly the bane of a wildlife biologist, it's so difficult to get accurate numbers of wild animal populations out there." Interview with Jay Boulanger, *supra* note 61. Wildlife biologists have used various methods to estimate deer numbers: flyovers and infrared samplings (which can result in under-counting), spotlighting and counting (which are unreliable), and bait and camera surveillance (but deer may not come to the bait). As a result, the primary means for estimating the number of living deer populations in most areas is by counting their deaths through hunting. Hunters are required to inform the state conservation agency about the deer they have killed that year, including information about factors such as sex and antlered or non-antlered individuals. This information is then used to perform a population assessment. Interview with Paul Curtis, *supra* note 27. Because hunting is prohibited in suburban areas, the number of deer in these areas is largely unknown. When such estimates were performed, for instance in Tompkins County, the population density of deer was recorded at 120 to 140 per square mile, compared to statewide densities of about 20 to 30 per square mile. By contrast, deer populations at the Adirondacks were estimated at fewer than 5 deer per square mile. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.
99. Pre-contact, the deer had relatively low densities, with the exception of areas artificially burned by indigenous groups that created shorter vegetation that deer thrived on. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 10. With European settlement, deer populations initially increased with the clearing of land for agriculture. By the mid-1800s, however, extensive hunting and more widespread agricultural conversion caused a precipitous decline and by the 1880s, deer were absent from most of the state except the central Adirondack Mountains. With the creation of the New York State Fisheries, Game

in deer numbers.[100] Along with an increase in legal protections, the northeastern United States has been experiencing a net increase in forest cover, as abandoned farmlands and other areas are reforested.[101] This forest regrowth has helped the deer populations rebound. In the words of Steve Joule, Regional Wildlife Manager of Region 7 of the DEC: "most people think that like the rainforest, our trees here in New York State are declining by the minute. [But] it's just the opposite: we now have more forested areas than we did 100 years ago, and depending on how far back you want to go, probably . . . more than we had 200, 300 years ago. [A]nd you add on top of that that human beings are now scattered within this forested habitat. [Well], how do you manage now?"[102]

In his book *Nature Wars*, Jim Sterba argues that successful conservation efforts and suburban sprawl have accelerated the conflict between humans and wild animals.[103] Often, this conflict occurs in what Sterba calls the "urban forest."[104] Tree canopies cover about 27 percent of what the Census Bureau defines as urban areas, with the largest percentages being in the northeast.[105] In this urban forest, Sterba writes, "many wild creatures… have all the comforts of a forest—and more."[106] As far as the deer are concerned, urban forests offer distinct advantages in comparison to rural forests: in the urban forest, deer are far less likely to be eaten, and at the same time have increased access to food.

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and Forest Commission in 1895 (the predecessor of New York's DEC), hunting limitations and protections caused a rebound in deer populations. *Id.*

100. *Id.* at 11. Deer can live up to 14 years in the wild, although in hunted populations their life spans are much shorter. *See generally* Interview with Jay Boulanger, *supra* note 61 (typically, a female doe will produce two to three fawns a year. Hence, in the absence of predation, deer populations will grow rapidly).

101. *Id.*

102. Telephone interview with Steven Joule, Regional Wildlife Manager, Region 7, New York State Department of Environmental Conservation (Aug. 5, 2014). [Hereinafter Interview with Steven Joule].

103. *See* JIM STERBA, 90, NATURE WARS: THE INCREDIBLE STORY OF HOW WILDLIFE COMEBACKS TURNED BACKYARDS INTO BATTLEGROUNDS (2012). Because of conservation and sprawl in suburban areas in the eastern United States, it is not uncommon to have 60 or even 100 white-tailed deer per square mile. Meanwhile, in the rural forests, 10 to 15 deer per mile is usually considered ideal by deer biologists, and 45 deer per square mile almost always signals overpopulation. *Id.* at 106–08. In the late 1980s, a population density of up to 50 deer per mile threatened the ability of the Quabbin Reservoir in western Massachusetts to continue supplying clean drinking water to 2.5 million people in and around Boston. The herd had eliminated much of the underbrush and ground vegetation necessary to prevent erosion and hold and filter the rainwater that replenished the reservoir. Following an intense public debate, a controlled hunt resulted in the killing of 576 deer over 9 days.

104. *Id.* at 51.

105. *Id.*

106. *Id.*

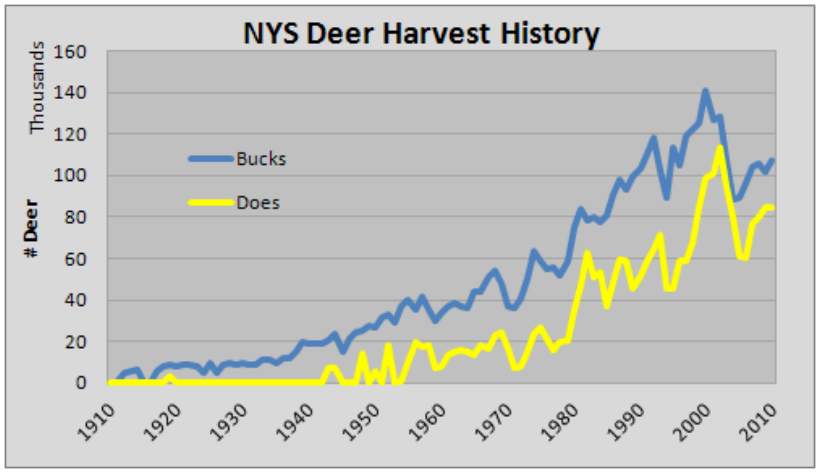

Figure 1: The harvest (i.e., hunt) of deer over time in New York State shows an approximate index of the rapid growth of the population.[107]

Alongside the reforestation of the northeast, deer expansion has been aided by the disappearance of this animal's historical predators—wolves and mountain lions—as well as by the decline in hunting by humans. Steve Joule explains, "[H]unting tradition isn't as integral to a lot of communities as it had been decades ago. It's thought of as just a barbaric way of managing or even a barbaric way of behaving. Rather than it being a revered tradition, it's got a very negative connotation to it now."[108] As a result of these changing perceptions toward hunting, over the past century many communities banned such practices. Tom Rawinski refers to this process as "eco-environmental gentrification": "these natural areas became gentrified [and protected]—for the dog walkers, the horseback riders, the nature walkers,"[109] but not for the deer hunters, he explains.

In addition to the ecological and cultural reasons, hunting has also been precluded in densely populated areas for safety reasons. One of the most pronounced manifestations of such safety concerns regarding deer hunting in New York is the 500-foot rule. This rule requires that firearms (and until recently, bows) not be discharged within 500 feet of a residential dwelling without the owner's

107. DEC Deer Management Plan, *supra* note 55, at 11.
108. Interview with Steven Joule, *supra* note 102.
109. Interview with Tom Rawinski, *supra* note 76.

permission.[110] Even without anti-hunting ordinances, hunting is thus almost always prohibited in New York's towns and cities.[111]

Other reasons for the significant increases in deer numbers include milder winters associated with climate change and stricter leash laws for dogs in suburbia, as well as the proliferation of ornamental plants. Indeed, gardens throughout suburbia offer what one biologist called a "smorgasbord" for deer.[112] Boulanger explains: "We have a buffet for them now in suburbia. They have an unlimited food source and they can eat all the browse and nutrition they want because people plant ornamental plants. We humans have created the perfect habitat for deer."[113] Predator-free and thick with nutritious browse, suburban areas have become havens for deer populations, which have in certain instances increased in numbers to 100 to 125 deer per square mile.[114] In Syracuse, New York, free bulb planting programs have exacerbated the problem. "Basically you're buying deer candy," Joule tells me. "And then when the deer show up to eat that candy, you get very angry."[115] Rawinski exclaims along these lines: "We are dealing with this sudden bounty of wildlife that has recolonized within our midst."[116] As I shall discuss later, the challenge for wildlife managers has not been to simply reduce deer populations, but also to balance their populations among their various sites of occurrence.

B. Impacts and Responses

At least four central concerns have arisen in light of the recent proliferation of deer populations. The first concern regards property damage. In 2002, New York farmers estimated crop damage by deer at approximately 59 million dollars.[117] Deer are also suspected vectors for Lyme disease. There are 7,000 new confirmed cases of Lyme disease per year in New York State. According to Paul Curtis, this is only the "tip of the iceberg," as not

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110. *Id.*

111. The 500-foot rule has lent itself to elaborate modes of resistance. For example, in the Village of Cayuga Heights in Tompkins County, New York, animal rights advocates have strategically traced and influenced households in order to preempt any hunting in the Village and to sabotage culling decisions by the Village Council. Interview with Diana Riesman, Trustee, Village of Cayuga Heights, Ithaca, New York (Nov. 24, 2013).

112. Interview with Paul Curtis, *supra* note 27.

113. Interview with Jay Boulanger, *supra* note 61.

114. *Id.*

115. Interview with Steven Joule, *supra* note 102. Parks and other natural areas in suburban/urban areas also present significant cover for deer. *Id.*

116. Interview with Tom Rawinski, *supra* note 76.

117. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 22.

all cases are documented.[118] In Tompkins County, an area with high numbers of deer, a 1,000 percent increase in Lyme disease has been recorded since 2007.[119] Automobile accidents that involve deer present a third deer related risk, this time to both deer and humans. Curtis explains: "Deer kill more people than any other wildlife species in North America. Around 200 people die in deer/vehicle crashes per year."[120] Deer-vehicle collisions also cost more than one billion dollars in property damages annually.[121]

A fourth set of deer impacts is ecological. Tom Rawinski, botanist with the Forest Health Program of the U.S. Forest Service, tells me that he first became interested in the burgeoning numbers of deer in the northeast because, "I soon recognized that invasive plants . . . were symptoms of a larger problem, and the larger problem was that the deer were shifting the balance within the forest. They were eating the native plants that could otherwise outcompete the invasives."[122] Similarly, Gordon Batcheller suggests that:

> As we drive our New York highways and look out to the adjacent forest lands, things look normal; they're forested. But a forest ecologist looking closer with that botanical lens might see that there are vast areas of New York where there's no regeneration of forest species. . . . So for forest ecologists, high deer numbers are causing grave concern about forest habitat health and the associated species diversity that comes with a very diverse forest ecosystem.[123]

The economic, public health and safety, and ecological concerns help explain why state wildlife agencies have been managing deer herds so intensely. In the words of Gordon Batcheller:

> It turns out that the white-tailed deer is a major and significant species for a number of reasons. . . . Those high densities [of deer] are where there are a lot of people [and so] those impacts can cause a lot of social concerns, political concerns, [and] economic concerns. So that's one factor. The other factor is

118. Interview with Paul Curtis, *supra* note 27.

119. Interview with Jay Boulanger, *supra* note 61.

120. Interview with Paul Curtis, *supra* note 27.

121. William F Allan & Joann K. Wells, *Characteristics of Vehicle-Animal Crashes in Which Vehicle Occupants Are Killed*, 6 No. 1 Traffic Injury Prevention 56, 56 (2005).

122. Interview with Tom Rawinski, *supra* note 76. (invasive plants, he explains, are more likely to be resistant to deer grazing).

123. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

> that the white-tailed deer is one of the most beloved species in the state of New York.[124]

Jeremy Hurst, a certified wildlife biologist at the DEC's Division of Fish, Wildlife, and Marine Resources, describes his view on deer management:

> Basically, we're charged with managing deer populations for the public, for the citizens of New York. And we do that in consideration of a variety of things. First, for the intrinsic value that deer have as a natural resource; and second, for the threat that deer can cause to human health and safety, to property damage, and also to ecological damage. [125]

VI. DEER MANAGEMENT

To maintain a balanced deer population in New York State, the DEC must first identify the threshold at which deer threaten ecosystem health, cause excessive property damage, or create undue risks to human health and safety.[126] Conservation management requires juggling different and at times competing interests and threats, which manifest differently in different regions and at different times. As a result, wildlife biologists have found themselves managing deer to reduce their numbers in some parts of the state, to stabilize the populations in others, and to increase their numbers in yet a third set of locations. This focus on numbers by wildlife managers has translated into practices of reducing births and/or on increasing deaths.[127] While managers could also theoretically impact deer numbers by increasing emigration—i.e., by translocating deer to other areas—this is usually viewed as a problematic solution as it merely transfers the problem elsewhere.[128]

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124. *Id.*

125. Telephone interview with Jeremy Hurst, Certified Wildlife Biologist, Division of Fish, Wildlife, and Marine Resources, New York State Department of Environmental Conservation (Aug. 08, 2014). [Hereinafter Interview with Jeremy Hurst]

126. *See* DEC DEER MANAGEMENT PLAN, *supra* note 55, at 22–25.

127. Basic wildlife biology texts teach that populations can grow by births and by immigration from other populations, and can decrease by deaths and emigration, per this formula: $P = (B + I) - (D + E)$. In other words, population growth is equal to births and immigrations (the factors that increase populations) minus deaths and emigrations (the factors that decrease population). *See, e.g.*, *Population Growth – An Introduction*, APPALACHIAN STATE U., http://www.appstate.edu/~neufeldhs/bio1102/lectures/lecture18.htm (last visited Oct. 4, 2014).

128. Interview with Paul Curtis, *supra* note 27.

Figure 2: Tagged deer visiting a bait site in the Village of Cayuga Heights. Cornell University's wildlife managers draw the deer to the bait, and infrared-triggered cameras take their pictures. The management team analyzes each photo and enters the numbers for tagged and untagged deer into a computer program in order to obtain population estimates. Deer with white ear tags are females who have been captured and surgically sterilized. Courtesy of Paul Curtis, Cornell University's Integrated Deer Research and Management Program, January 18, 2014.

In addition to killing through hunting and culling, which I will discuss shortly, attempts to control deer numbers include fertility control through contraception as well as surgical sterilization.[129] The DEC notes:

> Fertility control is often suggested or advocated by individuals and organizations as a humane and cost-effective way to control deer populations or to reduce damages or conflicts associated with deer, especially in urban-suburban areas [where hunting is not practical]. However, based on considerable research . . . this strategy has not proven to be a viable, standalone option for managing free-ranging deer populations.[130]

129. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 50.
130. *Id.* at 49.

According to the DEC, to be effective fertility solutions must be combined with lethal methods.[131] The two available contraceptives are GonaCon and Porcine Zona Pellucida (PZP).[132] The initial cost of contraception is approximately 500 dollars per deer, which can increase to two or three thousand dollars per deer as a higher proportion of the herd is treated.[133] Both contraceptives require regular booster shots. According to Curtis: "Deer need to be boosted, preferably once every year, but at least every other year. Could you imagine doing that with hundreds of free-ranging [deer]?"[134] At Irondequoit in New York State, contraception failed precisely for this reason, and the community eventually opted to "cull" its deer population.[135]

Culling, however, comes with its own baggage. The decision to cull often stirs passionate debates.[136] For example, the planned cull of approximately 3,000 deer on Long Island in 2014 was met with considerable controversy.[137] Boulanger explains:

> Long Island [is] a wealthy community, and they've had it. They know that . . . [a sharpshooter] is the most effective and the cheapest way to solve the problem, it just is. And the meat gets donated to the needy. But again, we're talking about the slaughter of thousands of animals by gun in suburban landscapes, [so] you can understand why this would make some people really upset.[138]

Active opposition to the Long Island cull made it much less productive than wildlife managers had hoped. Due to a combination of poor weather, legal obstacles, and human obstruction, "only" 192 deer were eventually culled. According to official reports by the United States Department of Agriculture,

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131. *Id.*

132. The PZP vaccine creates a protein layer around the does' ovum that precludes fertilization. *See Id.*, at 50–51; Interview with Paul Curtis, *supra* note 27.

133. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 51.

134. Interview with Paul Curtis, *supra* note 27.

135. *Id.*

136. See, *e.g.*, Al Cambronne, *Can't See the Forest for the Deer: to Cull or not to Cull? That is the Question Towns Increasingly Face*, WALL ST. J. ONLINE, http://online.wsj.com/news/articles/SB10001424052702304704504579429583302400534 (last updated Mar. 11, 2014).

137. Interview with Jay Boulanger, *supra* note 61; N. R. Kleinfield, *Outcry in Eastern Long Island Over a Plan to Cull Deer*, N.Y. TIMES, Dec. 18, 2013, *available at* http://www.nytimes.com/2013/12/19/nyregion/outcry-in-eastern-long-island-over-a-plan-to-cull-deer.html.

138. Interview with Jay Boulanger, *supra* note 61.

which funded the cull, "direct interference from individuals opposed to this project" occurred multiple times.[139] A more comprehensive culling plan has been executed in Amherst, New York since 2003.[140]

Surgical sterilization is often perceived as more effective for managing deer populations than repeated immunizations, as it requires a single capture and release.[141] But surgical sterilization, too, has its challenges. The estimated cost of this procedure is as high as 1,200 dollars per deer.[142] Furthermore, it involves trapping and surgical operation, to which animal rights groups usually oppose. The Integrated Deer Research and Management Program has been working this way with deer herds around Cornell University's campus.[143] They have captured and then surgically sterilized over 90 percent of the female deer in the core area,[144] pairing these efforts with a hunting program responsible for the death of more than 600 deer in the last few years.

The complexities of the legal norms that govern sterilization and hunting in densely inhabited areas are exhibited in the following excerpt from my interview with Paul Curtis:

> Paul Curtis (hereinafter, PC): There are lots of laws and ordinances. I only know the tip of the iceberg—the ones I have to deal with. For example, the only way we could get a high enough proportion of deer sterilized in Cayuga Heights in the last two years was Tony [director of White Buffalo, a private sharpshooting company] riding in a police car at 4am, when everybody's asleep, just darting away. . . . His dart rifle is different from mine. Mine's powder charged, so it's considered a firearm, his is a CO_2 gas cartridge and shoots at a lower velocity. So under New York State law it's not considered a firearm, he can shoot from a vehicle and doesn't have to meet the 500 feet discharge rule.

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139. Joseph Pinciaro, *With $225K to Spend, USDA Cull Kills 192 Deer*, THE SUFFOLK TIMES, Aug. 27, 2014, *available at* http://suffolktimes.timesreview.com/2014/08/51598/fewer-than-200-deer-killed-in-225k-cull-that-didnt-work/.

140. Interview with Paul Curtis, *supra* note 27; Jessica L. Finch, *Number of Deer/Vehicle Accidents Increase for First Time Since 2003*, THE AMHERST BEE, Mar. 19, 2008, *available at* http://www.amherstbee.com/news/2009-01-14/front_page/002.html.

141. Interview with Paul Curtis, *supra* note 27.

142. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 51.

143. *Id.*

144. Interview with Jay Boulanger, *supra* note 61.

Author (hereinafter, IB): But this is only from a police vehicle.

> PC: Only from a police vehicle.
>
> IB: But police could shoot from a police vehicle –
>
> PC: Police can shoot anytime.
>
> IB: Anytime.
>
> PC: Or if they find a deer on the highway that has been wounded, they can shoot to dispatch [it] anytime. [But] if I'm hunting and have a firearm in my vehicle and see an injured deer on the side of the highway, I can't kill it. I can't shoot that deer to put it out of its misery, because I can't shoot from a car, from the highway. A police officer can.
>
> IB: You can't shoot at all, or you can't shoot from the car?
>
> PC: I can't shoot from the car, it's illegal to have a loaded weapon in the car, and even if I go outside the car and load my gun, I couldn't shoot it from the highway, it's illegal to shoot from the highway.
>
> IB: From a highway. And if it were not from a highway?
>
> PC: If it were in a field somewhere and there were no houses within 500 feet—the 500-foot rule still applies.
>
> IB: Right.
>
> PC: Then I could dispatch the animal, if I had a license and could legally shoot it.

Despite the intense sterilization efforts, Cornell's deer population has remained stable at approximately 100 deer, rather than declining as hoped.[145] This, Cornell's deer managers explain,

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145. N.Y Dep't of Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, Permit No. 7-13-7935*, *infra* app. C, at 5 (2013).

is why lethal methods are unavoidable; it is also why they had proceeded to request deer damage permits from the DEC.

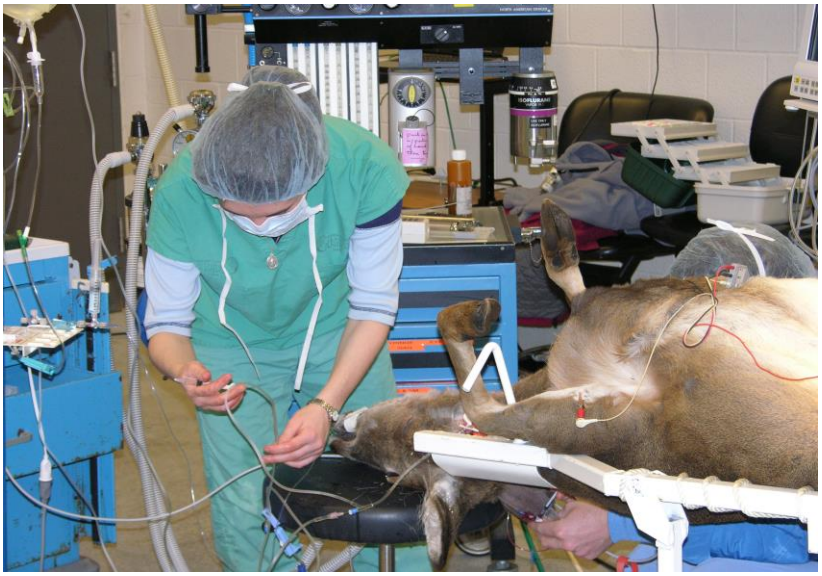

Figure 3: Anesthesiologist Jordyn Boesch prepares a female deer for a sterilization surgery at Cornell University's Hospital for Animals. The deer are monitored through the entire surgical procedure and recovery. Photo by Paul Curtis, Jan 23, 2008.

Still, fertility control is favored by many animal rights and welfare advocates for ethical reasons. Boulanger explains: "even though sterilization hasn't been proven scientifically, people are still willing to spend a lot of money to try it."[146] Curtis criticizes this tendency: "They say: 'Well, this could be an alternative.' Well, it's not," he tells me.[147] There is "a ton of political pressure from animal rights activists out there [who say] that we can do deer contraception," Curtis adds.[148] Boulanger comments sarcastically that while many might "think that sterilization is the savior, it's the best thing to do—I remind people that . . . it's not really non-lethal control because I rely on you nice people to hit the deer with your cars and kill them."[149] "The scary thing for me," Boulanger continues, "is that people put so much weight [on] sterilization as a sole technique. If we're using sterilization *and* hunting combined [with] nuisance [permits] and we're still flat-lining or we can't

146. Interview with Jay Boulanger, *supra* note 61.
147. Interview with Paul Curtis, *supra* note 27.
148. Interview with Jay Boulanger, *supra* note 61.
149. *Id.*

reduce [the deer] fast enough, then what hope do we have of sterilization or immuno-contraception [controlling them]?"[150]

Alongside killing deer and controlling their fertility, certain communities trap and transfer deer from overpopulated areas to less abundant ones. Steve Joule of the DEC explains that this comes at a high cost for the individual deer and is also quite problematic from an ecological standpoint.[151] In his words: "[I]f [the deer] lives more than a week, it's probably going to get hit by a car [when trying to find its] way home." Joule notes, accordingly, that the average mortality rate of translocated deer is "about 50 percent within the first several weeks . . . [and] then maybe 10 percent survival, if that, over the long term." "So . . . is this really a humane thing to do?" he asks rhetorically. "It's certainly not an effective thing to do, and it's not practical, with the cost of it," he adds.[152]

At present, the act of relocating deer is illegal in New York State, except under a special permit for scientific purposes.[153] Boulanger further explains: "it's really an uphill battle, it's a tough nut to crack and no one to date has come up with a real sure-fire way to alleviate an overabundance of deer except [by] culling . . . We know that's the most inexpensive and the most effective [strategy], and it works plain and simple, but it's *extremely* controversial."[154] Joule says, similarly, "by and large, lethal removal is the only method for reducing the impacts caused by deer." He adds: "I wish there was a magical pixie dust that we could . . . throw out and sprinkle over these suburban communities that would control the population, but it doesn't exist. Regulated hunting is really the only effective method for deer population [management] right now."[155] As Joule's statement suggests, state government agencies use hunters as the primary tool for controlling deer population.

But why does the government need hunters? Why not have government officials kill the deer themselves, or hire private sharpshooters to do this work for them? The answer to this question is complex and involves historical, economic, moral, and

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150. *Id.*

151. Gordon Batcheller of the DEC comments in response: "I am not aware of any cases of this in NY. Elsewhere? I haven't personally heard of this. Many individuals advocate for this, but we haven't allowed it." E-mail from Gordon Batcheller, *supra* note 89.

152. Interview with Steven Joule, *supra* note 102.

153. P. Bishop, J. Glidden, M. Lowery & D. Riehlman, *A Citizen's Guide to the Management of White-tailed Deer in Urban and Suburban New York* (New York State Department of Environmental Conservation), http://www.dec.ny.gov/docs/wildlife_pdf/ctguide07.pdf (last visited Dec 15, 2014), 5–6.

154. Interview with Jay Boulanger, *supra* note 61.

155. Interview with Steven Joule, *supra* note 102.

cultural dimensions. Practically, with only one hundred wildlife technicians and biologists in New York State, state officials are not equipped for the task of killing hundreds of thousands of deer per year. In a certain sense, then, the roughly 3/4 million hunters in New York are deputized by the state to reduce deer numbers, with the added benefit that they pay for the right to provide this labor for the state.

More importantly, perhaps, the answer to the question I posed is that hunting is still more culturally accepted than culling.[156] This requires some explanation. Hunting is perceived in some quarters in a romantic light, as the (only) natural way for humans to kill animals—not unlike predation in the animal world. Ann Causey suggests along these lines, that "the will to hunt, the desire to hunt, lies deep. It is . . . inherent in man."[157] Hence, she continues, "the urge to kill may be viewed as an original, essential human trait . . . it is impossible to believe that education alone can obliterate desire that has been developed and reinforced over millions of years."[158] Echoed by some of the wildlife managers interviewed for this project,[159] this view has been contested in the scholarship that compares and contrasts human hunting and animal predation. In the words of anthropologist Garry Marvin: "Human hunting is a set of cultural rather than natural practices."[160] Anthropologist Tim Ingold suggests, similarly, that whereas "the essence of hunting lies in the prior intention that motivates the search for game, the essence of predation lies in the behavioral events of pursuit and capture, sparked off by the presence, in the immediate environment, of [a] target animal or its signs."[161] Accordingly, some have suggested another avenue for controlling deer populations: to reintroduce the deer's natural predators (namely, wolves or mountain lions) into the region so that they may serve as the natural balancers of deer populations. Boulanger remarks in response: "I love to joke with the audience that although I'd love nothing more than to unleash wolves and mountain lions. . . in Cayuga Heights, some stakeholders might find that scary."[162] Again, in the eyes of wildlife managers,

156. Interview with Jay Boulanger, *supra* note 61.

157. Causey, *supra* note 4, at 339

158. *Id.*

159. For example, Gordon Batcheller explains that what draws him to recreational hunting is the predatory relationship with the animal. Interview with Gordon Batcheller (Aug. 27, 2014), *supra* note 1.

160. Marvin, *supra* note 22, at 22.

161. TIM INGOLD, THE APPROPRIATION OF NATURE: ESSAYS ON HUMAN ECOLOGY AND SOCIAL RELATIONS 91 (1987). *See also* Paul Veatch Moriarty and Mark Woods, *Hunting ≠ Predation*, 18 ENVTL. ETHICS 391, 405 (1997).

162. Interview with Jay Boulanger, *supra* note 61.

recreational hunters are the primary agents for inducing deer mortality.

But rather than use recreational hunters, certain communities have made the decision to hire private sharpshooting companies (such as the White Buffalo) to perform what these companies refer to as "deer removal." This removal is typically performed by baiting and then bolting the deer—the standard veterinarian-approved practice of ending animal lives in the livestock industry. "It's very controversial," Boulanger notes. "So I think . . . people are more accepting of [hunting], even though the techniques might not be as humane as standard [veterinary practices]."[163] On the other hand, certain hunters are young or may be inexperienced, what Boulanger calls "weekend warriors." "[They don't] hunt very much. . . so the question is [whether] that is as humane as something that's more standardized [like private sharp shooting]."[164] Boulanger asks in this context: "What's more palatable to the public? Is hunting [more] palatable because it's been around a long time and people have romantic notions of what hunting is, versus large-scale culling [by sharpshooters]?"[165]

It is important to notice the terminological distinction between "harvesting" deer through hunting and their "removal" or "culling" through professional acts of shooting. Although their end result is often the same—the killing of wild deer—these two forms of killing involve a different set of rituals, performances, and regulations. As the authors of *Killing Animals* argue: "Killing an animal is rarely simply a matter of animal death. It is surrounded by a host of attitudes, ideas, perceptions, and assumptions."[166] In the same book collection, anthropologist Garry Marvin distinguishes between three types of animal killing: cold, hot, and passionate. Unlike the unemotional and removed killing executed by the professional ("cold death"), sport and leisure hunting is passionate. "The hunter commits himself or herself intensely and fully to the visceral and emotional pleasures of hunting. This is not utilitarian work but a passionate pursuit in which the animal is sacrificed."[167]

Despite the intensifying role of sharpshooters, 90 percent of deer killing is still carried out by hunters.[168] According to the DEC, hunting is still "the primary tool [for managing] deer

163. *Id.*
164. *Id.*
165. *Id.*
166. ANIMAL STUDIES GROUP, KILLING ANIMALS 4 (2006).
167. Marvin, *supra* note 22, at 25.
168. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

populations,"[169] and "deer harvest through regulated hunting remains the most effective and equitable tool for managing deer populations across the state."[170] In fact, the DEC encourages landowners wishing to help reduce deer numbers to "[c]onsider providing access to some hunters."[171] Although declining in the mid-twentieth century, deer hunting has lately rebounded, with seasons broadening and large portions of the state opening to this practice.[172] An estimated 250,000 deer are killed annually in New York State through hunting. Vehicle collisions, a second mortality factor, are responsible for the death of another 100,000 deer every year.[173]

VII. HUNTING LAWS

Hunting is regulated through a legal matrix of permitting and licensing systems, territorial configurations, and temporal distinctions. Jeremy Hurst explains: "[T]he layers of laws and regulations… make deer management complex. . . . [A]nd really, decisions for effective management become more of a social issue than a biological issue."[174] Hunting regulations in the United States date back to the early colonial period. A 1705 law prohibited the killing of deer except between August and January, constituting an early version of what is known today as a "hunting season."[175] In the nineteenth century, the decline in deer populations and the pressures by sportsmen's groups resulted in laws that shortened the hunting season (in 1886), that imposed "bag limits" (also in 1886)—namely, a limit on the number of deer who can be taken per hunter—and that outlawed certain modes of hunting, such as hounding (in 1897).[176] By the turn of the twentieth century, most of the regulatory tools that exist in today's hunting laws were already in place.

Current legal regimes regulate deer killing both through hunting laws, which refer to this form of killing as "harvesting," and through nuisance laws, which refer to it as "culling." The vast majority of deer killing occurs through hunting.[177] To hunt

169. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 19.

170. *Id.* at 17.

171. N.Y. DEP'T ENVTL. CONSERVATION, LANDOWNER'S GUIDE FOR MANAGING DEER, http://www.dec.ny.gov/animals/7199.html (last visited Oct. 3, 2014).

172. *Id.*

173. Interview with Jeremy Hurst, *supra* note 125.

174. *Id.*

175. C.W Severinghaus & C.P Brown, *History of the White-tailed Deer in New York*, 3(2) N.Y. Fish & Game J. 129, 140 (1956).

176. *Id.* at 140, 146.

177. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

deer in New York State, hunters must participate in a hunter education course that focuses on gun safety and hunter ethics, after which they must obtain a hunting license, and then they may further obtain various hunting privileges (licenses and privileges, jointly, will be referred to hereinafter as "permits").[178] Each hunting permit allows an individual to hunt on certain dates with certain weapons ("implements") and is accompanied by a tag that prescribes the type of deer that can be taken. A hunter can purchase three standard permits in New York: regular, bow-hunting, and combined muzzleloader/crossbow.[179] Notably, each state has enacted its own variation on this process. For example, "bag limit" regulations vary widely by state, and even within states. So while Alabama allows residents to harvest one antlerless deer per day plus a total of three antlered deer,[180] New York's bag limits are more restrictive: a typical New York hunter will be entitled to harvest between one and five deer during a variety of hunting seasons from the end of September through the end of December.[181]

The concept of seasons—namely, specific windows in time when certain animals can be killed using certain implements—is central to the paradigm of regulated hunting. While permits are issued by local licensing agents such as town halls and sporting goods stores, the season dates are set by state law or regulation.[182] For the purpose of scheduling hunting seasons, New York State is divided into Northern and Southern Zones. In the Southern Zone, generally the area south of the Adirondack State Park, the regular hunting season begins in mid-November and lasts three weeks.[183] During this time, a hunter may harvest an antlered deer using any legal hunting implement.[184] In most areas, an individual can use a bow, muzzleloader, handgun,

178. In New York, a hunting license allows the purchaser to hunt white-tailed deer during the regular season, and hunting privileges allow hunters to hunt during other seasons. A hunting license is required before any additional privileges may be purchased, even if the hunter does not wish to hunt during the regular season. *See* N.Y. ENVTL. CONSERV. LAW § 11–0701 (McKinney 2005 & Supp. 2014); Interview with Tom Rawinski, *supra* note 76; Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

179. *See* N.Y. ENVTL. CONSERV. LAW § 11-0701 (McKinney 2005 & Supp. 2014).

180. Provided a third deer cannot be taken unless at least one of the antlered deer taken had at least four points, each longer than one inch, on one side. ALA ADMIN CODE r. 220-2-.01 (2014). This means that an Alabama hunter could harvest 121 deer over the 118-day season that runs from Oct. 15 to Feb. 10. Besides the bag limit of one antlered deer per day, Alabama laws do not limit when hunters may take antlered deer.

181. *See* N.Y. ENVTL. CONSERV. LAW § 11–0907 (McKinney 2005 & Supp. 2014).

182. Interview with Steven Joule, *supra* note 102; N.Y. ENVTL. CONSERV. LAW § 11–0907.

183. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 37.

184. *See* N.Y. ENVTL. CONSERV. LAW § 11-0907(2) (McKinney 2005 & Supp. 2014).

shotgun, or rifle.[185] In areas of dense human populations, rifles are often not permitted.[186] Both the bow hunting permit and the crossbow/muzzleloader permit allow a hunter to hunt in bifurcated seasons and take either an antlered or an antlerless deer.[187] Still in the Southern Zone, the early bow hunting season begins about seven weeks before the regular season, on October 1, and ends on the first day of the regular season. An overlapping crossbow season occurs during the last 14 days of the early bow hunting season. After the regular season, there is a late bow hunting and a concurrent combined crossbow/muzzle loading season. Despite the additional time for these other seasons, 75 percent of the deer are killed during the three-week regular season. In the Southern Zone, the hunting seasons end by early January.[188]

The Northern Zone follows a similar pattern, with minor variations such as a shorter crossbow season and an additional early muzzle loading season. Hunting in the Northern Zone ends in mid-December.[189] Hunting seasons are thus temporal and spatial legal constructs that have been shaped over many years and influenced by both conservation goals and hunter interest groups. As a result, contemporary hunting seasons both promote and frustrate conservation efforts.

185. *Id.*

186. *See id.*

187. *Id.*; N.Y. COMP. CODES R. & REGS. tit. 6, § 1.11(d) (2014).

188. Interview with Jeremy Hurst, *supra* note 125.

189. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 38. In addition to the regular seasons, an experimental "Deer Management Focus Area" season—a three-week season to take antlerless deer—was enacted to reduce the burgeoning deer population in Tompkins County, NY, from Jan. 12 through Jan. 31. If successful, this experimental program may expand to other areas. Interview with Jay Boulanger, *supra* note 61; Interview with Paul Curtis, *supra* note 27.

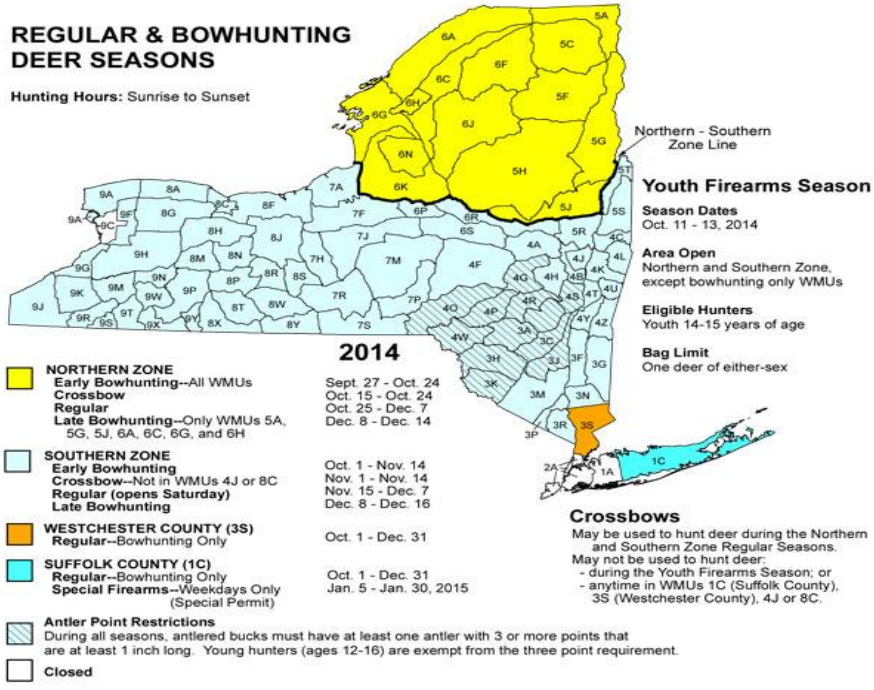

Figure 4

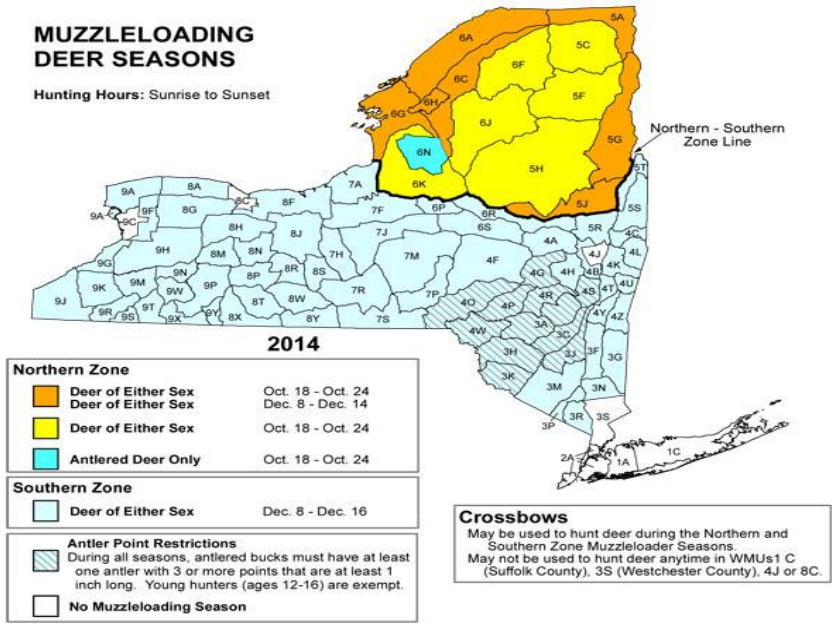

Figure 5

Figures 4 and 5 show maps of hunting zones, units, and implements, providing a visual aid for hunters to decipher the complex hunting regulations. The areas identified in the maps (e.g., 1A, 3J, 9H) are Wildlife Management Units (WMU). After identifying the relevant season and WMU, the hunter can trace the specific dates of that season as well as particular antler point restrictions.[190]

In line with fair chase principles, hunting seasons are meant to avoid the period when does give birth and raise young fawns, as well as those times in which deer are in unusual concentrations and thus particularly vulnerable.[191] In Boulanger's words: "The hunting season occurs at a time of year when the fawns are able to leave their mother and survive on their own . . . to make it more ethical . . . [, instead of] having a fawn die on its own if you were to shoot [the mother] in the summer."[192] Tom Rawinski explains: "no one, no human, would ever be convinced that it is ethically proper to shoot a female mother deer at that critical time of the year when [the fawns are] young."[193] The ethical rationales behind the temporal definitions of the deer hunting seasons are thus closely intertwined with deer biology. The regular season in mid-November does not start until after the commencement of deer breeding,[194] which allows bucks time to impregnate does so that the next generation of deer can come into existence before does from the older generation are killed. Impregnated does can be shot during the season, however, and so the protection of the next generation is not absolute.

There are also other considerations beyond the biological ones. Hurst notes:

> If we were to start with a blank slate and say we wanted to manage deer and the only consideration we were interested in was whether or not we can increase or decrease population towards our objective, and didn't have any social considerations in the midst, our seasons would probably look very different. But they've evolved this way because the reality is we work with hunters and they have their interests and their traditions.[195]

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190. Figures 4 and 5 adapted from N.Y. DEP'T ENVTL. CONSERVATION, DEER AND BEAR HUNTING SEASONS, http://www.dec.ny.gov/outdoor/28605.html (last visited Oct. 12, 2014).

191. Interview with Jeremy Hurst, *supra* note 125.

192. Interview with Jay Boulanger, *supra* note 61.

193. Interview with Tom Rawinski, *supra* note 76.

194. Interview with Jeremy Hurst, *supra* note 125.

195. *Id.*

Hurst summarizes: "The seasons' lengths [and] the timing of the seasons are a result of management needs, tradition, [and] biological considerations…[T]here's also the overlying issue of hunter tradition."[196]

The regulation of deer antler length permitted for hunting introduces an additional complexity to hunting laws. Until recently, in New York State any deer with one antler longer than three inches could be "harvested" as an antlered deer,[197] while deer with smaller antlers were considered antlerless.[198] In an effort to increase the population of older bucks with more prize-worthy antlers (valued by some sport hunters), in certain regions the DEC has defined an antlered deer as having at least one antler with three points, each point longer than one inch.[199] Despite this heavy emphasis on taking antlered deer, the state management of deer populations is mostly performed through the regulation of doe, not buck, harvesting. "It's the taking of does, the female deer, that allows us to manage deer populations to healthy levels," Batcheller notes.[200] The reason, again, is largely biological: a small amount of bucks, if properly distributed across the landscape, can theoretically impregnate all the does; by contrast, each doe has a limited capacity for reproduction each year. The most effective way of reducing deer populations, then, is to control or kill does. Each time a doe is killed, the reproductive potential of the population diminishes incrementally. Hence, in areas where the deer population is perceived to be too high, wildlife managers encourage hunters to take additional does. According to Hurst, deer management in New York is conducted "primarily through harvest of antlerless deer: adult does and fawns. … We can increase or decrease the harvest of antlerless deer as needed in order to allow the population in a certain area to increase or decrease."[201]

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196. *Id*.

197. N.Y. ENVTL. CONSERV. LAW § 11–0914 (McKinney 2005 & Supp. 2014).

198. N.Y. ENVTL. CONSERV. LAW § 11–0907(1) (McKinney 2005 & Supp. 2014).

199. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.27 (2012). This new definition of antlered deer left unchanged the prior definition of antlerless deer as any deer without an antler of at least three inches. Consequently, in this region, any deer with an antler greater than three inches, but having less than one antler with at least three points, all at least one inch, can neither be legally harvested as antlered nor as an antlerless deer.

200. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

201. Interview with Jeremy Hurst, *supra* note 125.

VIII. DEER MANAGEMENT PERMITS (DMPS)

In addition to regular hunting permits, hunters can also choose to participate in a lottery for deer management permits ("DMPs").[202] Unlike the seasonal tags, which may be used anywhere in New York and only at certain times, DMPs can only be used in particular areas, known as wildlife management units ("WMUs") and in any hunting season.[203] New York State is divided into 92 WMUs, each one with its own regulation and management apparatus.[204] "It would be inappropriate for us to simply attempt one broad brush approach for management on a state-wide scale," Hurst tells me. "Deer populations vary too dramatically throughout the state, and so we would be under-managing in some areas and over-managing in others and would not be responsive to local conditions," he explains.[205] The regulations also change over time. "[It is] an adaptive framework," Hurst later notes. "[S]o as populations change and as habitats change and as circumstances for management change, we can respond by modifying the boundaries as needed."[206]

The chance of being awarded a DMP varies, depending on the DEC's target in the particular WMU and the agency's expectation of how many hunters will participate in the lottery. According to the DEC, the formula is "actually quite simple," but "the process of determining several of the variables in the equation is complex."[207] Generally, the DEC seeks to identify "removal rates" for each WMU that would produce a stable deer population, "allowing for neither growth nor reduction."[208] Such a stability-level removal rate is unique to each WMU. Once the DEC identifies a stability-level removal rate, it relates the current population level to the

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202. *Id.*; Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

203. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.20 (2009).

204. Interview with Jeremy Hurst, *supra* note 125.

205. *Id.*

206. *Id.*

207. N.Y. DEP'T ENVTL. CONSERVATION, DMP AVAILABILITY AND PROBABILITY OF SELECTION, http://www.dec.ny.gov/outdoor/30409.html (last visited Oct. 4, 2014). The DEC sets the target number of DMPs in a WMU by following the formula:

Step 1. Projected Buck Take X Removal Rate* = Total # of Adult Does to be Harvested

Step 2. Total # of Adult Does to be Harvested - # Adult Does Taken by Muzzleloader Hunters and Archers and on DMAP tags = Necessary Adult Doe DMP Take

Step 3. Necessary Adult Doe DMP Take ÷ Proportion of Adult Does in DMP Take** = Total Desired DMP Take

Step 4. Total Desired DMP Take ÷ Success Rate of DMPs = Total # of DMPs to Issue

* Desired ratio of adult female to adult male deer in harvest

**This accounts for fawns in the DMP take.

N.Y. DEP'T ENVTL. CONSERVATION, UNDERSTANDING DMPS: QUOTA SETTING AND PERMIT SELECTION, http://www.dec.ny.gov/outdoor/47743.html (last visited Oct. 4, 2014).

208. N.Y. DEP'T ENVTL. CONSERVATION, UNDERSTANDING DMPS: QUOTA SETTING AND PERMIT SELECTION, http://www.dec.ny.gov/outdoor/47743.html (last visited Oct. 4, 2014).

desired level: if the population is greater than the desired level, the DEC prescribes a greater-than-stability-level removal rate—and vice versa.[209] Because the DEC prefers to minimize dramatic fluctuations in populations, the prescribed removal rate may not be equal to the stability-level removal rate, depending on the prior rate.[210]

By restricting or expanding DMPs in the various WMUs, New York State is thus able to adjust the actual deer population to numbers that are more in line with its desired population level. When the number of DMPs awarded for a particular WMU ends up being significantly less than the DEC's target number, bonus DMPs are issued free of charge to hunters who have a proven track record of harvesting antlerless deer.[211] Gordon Batcheller details how DMP tags work in the context of WMUs:

> [WMUs] are legal boundaries. [S]o . . . if I have a deer tag for one area, I can only use it in that area, I can't go to another area, so it's controlled that way. . . [W]hen I have a doe tag it actually has [the number of the WMU] that indicates where I can use it. [E]very permit has a unique number, which is a link to the hunter's name. . . and the permits have your name on it, so you can't . . . give [them] to other hunters. You have to put the tag on the animal, and then you have to report the taking to us so we can keep track of [the] permits. *[The tags] are sort of a chain of custody to keep all the deer hunting lawful from A to Z.* It starts with the license and ends with tagging a deer, so we know the deer was taken by someone lawfully licensed to do so. [The tag] is attached to the ear or to the antlers of the deer. So basically, it stays with the deer until the deer is cut up and put into a freezer. At that point it can be discarded. But before you discard it, you have to report the take [to us], so that we have all that information that was on the tag, [and this] goes into our computer and becomes the final report.[212]

Despite the intense attention to and the heightened regulation of hunting, the practices detailed in the above quote rarely end up

209. *Id.*

210. *Id.*

211. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, BONUS DMPS, http://www.dec.ny.gov/outdoor/10001.html (last visited Oct. 4, 2014).

212. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1. (emphasis added).

balancing deer population numbers. Wildlife biologists estimate that in New York, an average 40 percent of the adult doe population must be killed annually to stop the population from increasing.[213] In many areas, hunters would need to kill up to five does to balance the population, but DEC survey shows that most kill only one or two. Boulanger notes, "We know from . . . wildlife sociological research . . . that hunters will only take between, depending on the study, 1.6 and 1.9 deer per year, even given unlimited opportunities."[214] He explains that hunters are "busy with work and family life and to get a deer is a lot of work—you have to tag it, gut it, [and] drag it out of the woods. . . [I]t takes hours to butcher it [if you do it yourself]."[215] New York practically provides an unlimited permit supply for does in some areas, Hurst tells me along these lines, but there is "not enough interest amongst the hunters to take enough antlerless deer to affect the change."[216]

Hunters' reluctance toward hunting does is partially rooted in the sport hunting tradition. Although the restrictions on hunting occurred at a time when deer numbers were low, many hunters still refrain from hunting does even under conditions of abundance. Curtis explains that "culturally, hunters are very resistant to change."[217] "It doesn't matter if we have deer all over the place," he says, "they still won't shoot a doe."[218] These traditions have in many instances been encoded into law, and as such have become even more difficult to alter. Until 2001, for example, Pennsylvania still permitted the shooting of does for only three days in the entire hunting season.[219] Currently, however, Pennsylvania, like New York, provides significant opportunities for doe hunting.[220]

IX. CONFLICTS OF LAW

Hunting norms often conflict with each other and with conservation regulations, demonstrating that the close relationship between conservation and hunting is not without its tensions and ambiguities. Such conflicts play out on different scales: between the government agency and the legislature, between hunters and the agency, between different jurisdictions,

213. Interview with Steven Joule, *supra* note 102.
214. Interview with Jay Boulanger, *supra* note 61.
215. *Id.*
216. Interview with Jeremy Hurst, *supra* note 125.
217. Interview with Paul Curtis, *supra* note 27.
218. *Id.*
219. *Id.*
220. *See* 58 Pa. Code. § 139.4 (2014).

et cetera. For example, certain groups and individuals within the hunting community have been known to push for laws or policies that conflict with the conservation agency's goals. Batcheller explains: "we have to really lower the deer numbers so that they stop impacting forest regeneration. And when you do that, hunters go out and—you know what?—they don't see deer. So we get complaints from deer hunters who don't see enough deer because we're trying to manage these areas and restore these ecosystems."[221] As mentioned earlier, another site of conflict has emerged around the ethics of taking does for the efficient management of deer populations. While this is a no-brainer for wildlife managers, doe killing is contentious among hunters and can conflict with the customs of certain hunters. Batcheller explains that "you still run across people who either personally don't shoot does or [who] teach others that it's a bad idea."[222]

Another topic in which existing conservation management laws conflict with hunting norms is the regulation of antlers. Certain local ordinances aim to reduce the harvest of younger bucks.[223] Joule explains that:

> Several groups wanted the DEC to manage and make it mandatory that you have to pass up certain size animals and can only harvest certain other size animals. Well, that works from a recreational standpoint, [but] it has nothing to do with management, so it wasn't really something that was necessary to do. And there's always other stakeholders—safety concerns, crop damage, and a whole bunch of other stakeholders—whose impacts from deer are a little bit more important than the size of a buck's antlers, so [this] was never anything that was implemented by the state.

As a result, hunters proceeded to lobby their local legislators, who in turn "made antler restrictions mandatory in certain wildlife management [units]."[224] In this case, the hunters' needs conflicted with management objectives as well as with the interests of other hunters who do not hunt for trophies.

To take another example, historical restrictions have kept New York State from issuing hunting permits for does in the

221. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.
222. *Id.*
223. Interview with Steven Joule, *supra* note 102.
224. *Id.*

Adirondack Mountains.[225] As a result, "the population is *much* more difficult to maintain at levels we'd like to maintain," says Joule.[226] Long Island further exemplifies how conflicts of law may be dictated by certain interest groups, thereby contradicting the State's conservation management efforts. For example, deer hunting (even by bow) is strictly forbidden in Long Island's Nassau County, and in Suffolk County special hunting permits from town clerks must be obtained. The DEC deems these unique Long Island regulations "a complex and onerous system of laws and regulations governing deer hunting."[227] In such cases, Joule tells me, state law is dictated by very influential groups. "[I]t's not the experts that are consulted, it's the legislators [who] make the decision[s]," he laments.[228] Hurst further explains that "there's a complex relationship between how we use hunters to manage deer populations at the large scale, and to a large degree [at] the small scale, too. We have a matrix of authorities."[229] But at times, "there is some tension between the authority that we have and the authority that we do not have. [T]here are tools that we could use to manage deer more effectively, that we [can't use] because the legislature says no."[230]

Crossbows are another example for how legal norms can conflict with and restrict conservation management by state agencies. Until recently, New York State prohibited hunting with crossbows. This, despite the DEC's preference toward allowing crossbow hunting, especially in urban and suburban areas, because it is relatively low risk and can be used close to human settlements where there are also high deer numbers. Crossbows are favored by the DEC also because they require less physical exertion than a regular bow and can enlist a wider variety of hunters.[231] Hurst explains: "The crossbow doesn't require the hunter to draw the bow and hold it drawn and, in fact, you can draw the bow and cock the crossbow . . . so it makes hunting a lot easier for younger or smaller-framed hunters or women, or for elderly or disabled hunters."[232] In 2014, crossbows were permitted in large parts of New York's rural and suburban areas.[233] Still, in

225. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1; Interview with Jeremy Hurst, *supra* note 125; N.Y. ENVTL. CONSERV. LAW § 11–0913(1)(a) (McKinney 2005 & Supp. 2014).

226. Interview with Steven Joule, *supra* note 102.

227. DEC DEER MANAGEMENT PLAN, *supra* note 55.

228. Interview with Steven Joule, *supra* note 102.

229. Interview with Jeremy Hurst, *supra* note 125.

230. *Id.*

231. *Id.*

232. *Id.*

233. *Id.;* N.Y. ENVTL. CONSERV. LAW § 11–0907(2).

certain areas of the State such as Long Island, crossbows are prohibited despite the DEC's stated position.[234]

X. DEER DAMAGE (NUISANCE) PERMITS

Alongside hunting permits, deer are also controlled through deer damage (nuisance) permits. In such cases, rather than directly utilizing hunters to achieve target deer populations, the DEC allows private landowners to utilize hunters to implement their own site-specific deer management.[235] While hunting is responsible for the death of over 200,000 deer every year, deer damage (nuisance) permits only account for thousands of deer deaths.[236] According to Joule: "There's no comparison . . . the number of deer permitted in regulated hunting is many, many, many times of a nuisance permit."[237] Although these permits are marginal in terms of statewide numbers, they provide targeted population control in sites where deer are perceived to be a nuisance.

Indeed, the DEC is authorized by statute to grant a permit to "take any wildlife at any time whenever it becomes a nuisance, [when it is] destructive to private or public property or [when it is] a threat to public health or welfare."[238] The DEC states: "One of the principal philosophies guiding DEC is that the public shall not be caused to suffer inordinately from the damaging effects of, and conflicts arising from, resident wildlife."[239]

There are two types of deer damage, or nuisance, permits in New York: the deer management assistance program (DMAP) permits and deer damage permits (DDP).[240] Both are managed by the DEC and utilized by landowners to control deer populations. Additionally, both are utilized in areas that are perceived as having too many deer who are "causing ecological or agricultural damage."[241] But whereas DMAPs are used during hunting seasons,

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234. *See* DEC DEER MANAGEMENT PLAN, *supra* note 55, at 36, 53–54.

235. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30 (2014).

236. Interview with Gordon Batcheller (Aug. 08, 2014), *supra* note 1.

237. Interview with Steven Joule, *supra* note 102.

238. N.Y. ENVTL. CONSERV. LAW § 11–0521 (McKinney 2005 & Supp. 2014).

239. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 22. Deer damage (nuisance) permits are issued when individual deer are considered "nuisance wildlife," "damaging wildlife," or "nuisance/damaging wildlife." "Nuisance wildlife" is a deer (or other wild animal) "that may cause property damage, is perceived as a threat to human health or safety, or is persistent and perceived as an annoyance," while damaging wildlife is: "A wild animal that damages property," such as by eating ornamental plants. *See* N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, infra* app. A, at 1. See N.Y. Dep't Envtl. *Conservation, Remove or "Take" Nuisance Animals Legally*, http://www.dec.ny.gov/animals/81531.html (last visited May03, 2015).

240. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30 (2014).

241. Interview with Jay Boulanger, *supra* note 61.

DDPs are used off-season. Many other states utilize similar programs.[242]

A. Deer Management Assistance Program Permits (DMAPs)

Under DMAPs, a landowner[243] must establish that hunting has failed to regulate the relevant population. These permits are issued for antlerless deer (does and fawns) or for deer with antlers less than three inches long.[244] The actual taking of the deer may be performed by landowners or hunters by invitation only. A municipality or institution may also apply for a DMAP permit if it has a documented deer problem and the DEC has approved its plan for deer management.[245]

Whereas DMAP tags can be used in any open deer-hunting season,[246] hunters must also possess the appropriate seasonal license to take a deer pursuant to a DMAP tag.[247] A hunter is limited to two DMAP tags per year.[248] The effectiveness of DMAP tags depends both on the number of hunters who are permitted and willing to hunt antlerless deer and on the number of landowners' who are willing to invite hunters into their land (DMAP tags cannot be sold).[249] Alongside their obvious goal of controlling deer populations, DMAP permits thus also serve to expand hunting opportunities in New York. According to the DEC, "landowners no longer provide the level of open access they once did. DMAP offers an avenue for landowners to meet deer

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242. *See, e.g.,* 58 Pa. Code §§147.671–676 (2014)

243. To be eligible for a DMAP permit, applicant(s) must own or control land in New York that meets one of the following criteria:

1. Agricultural land that was damaged by deer where the damage has been documented or can be documented by the DEC; or

2. Land where deer damage to significant natural communities has been documented or can be documented by the DEC; or

3. Contiguous land totaling 100 or more acres where forest regeneration is negatively impacted by deer. This negative impact must be identified in an existing forest and/or land management plan; or

4. Contiguous land totaling 1,000 or more acres where a deer management plan specifically designed for the property has been submitted to and approved by the appropriate regional office of the Department.

N.Y. DEP'T ENVTL. CONSERVATION, DEER MANAGEMENT ASSISTANCE PROGRAM, http://www.dec.ny.gov/animals/33973.html (last visited Mar. 20, 2015).

244. An applicant can apply for unlimited tags. However, forest management [(3) in *id.*] and deer management [(4) in *id.*] are typically limited to receiving 1 tag per 50 acres of land under the permit. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(h) (2014).

245. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(f) (2014).

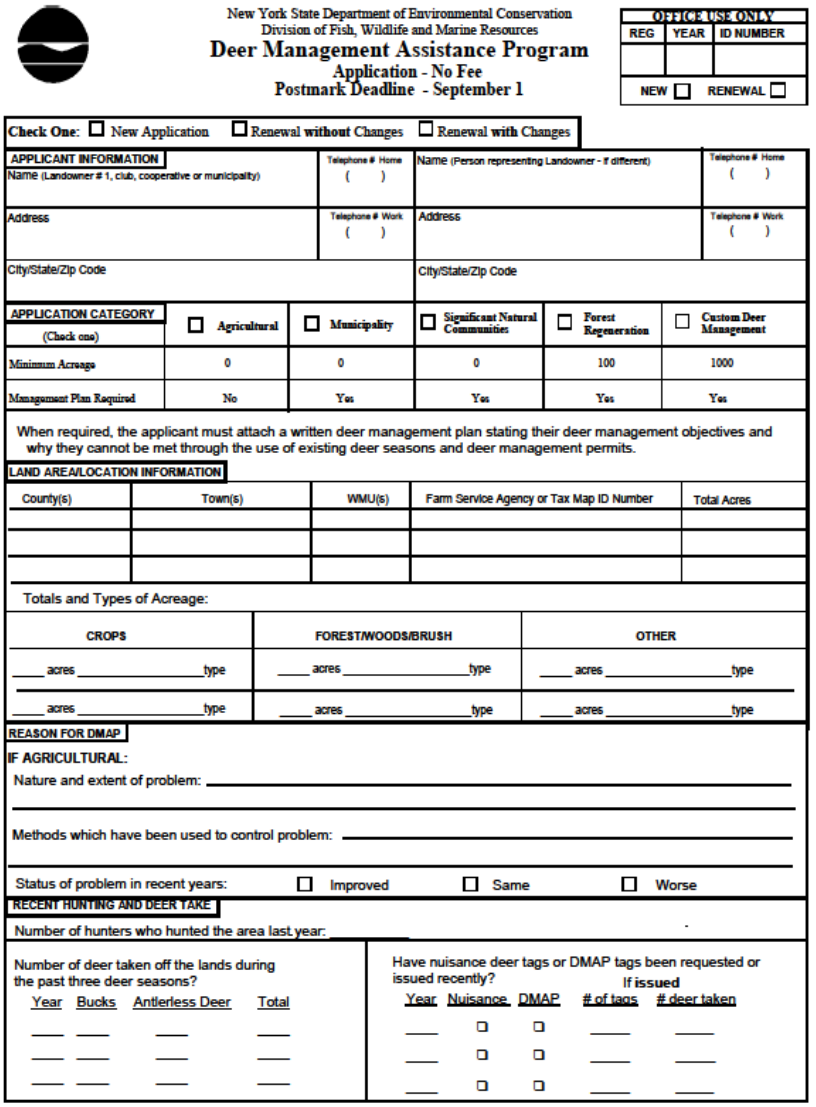
246. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(c) (2014).

247. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(d) (2014).

248. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(h)(4) (2014).

249. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(h)(5) (2014).

management needs on their property, while providing an incentive to give licensed hunters access to deer and deer hunting."[250]



New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources

Deer Management Assistance Program

Application - No Fee
Postmark Deadline - September 1

OFFICE USE ONLY		
REG	YEAR	ID NUMBER

NEW ☐ RENEWAL ☐

Check One: ☐ New Application ☐ Renewal **without** Changes ☐ Renewal **with** Changes

APPLICANT INFORMATION

Name (Landowner # 1, club, cooperative or municipality)	Telephone # Home ( )	Name (Person representing Landowner - if different)	Telephone # Home ( )
Address	Telephone # Work ( )	Address	Telephone # Work ( )
City/State/Zip Code		City/State/Zip Code	

APPLICATION CATEGORY (Check one)	☐ Agricultural	☐ Municipality	☐ Significant Natural Communities	☐ Forest Regeneration	☐ Custom Deer Management
Minimum Acreage	0	0	0	100	1000
Management Plan Required	No	Yes	Yes	Yes	Yes

When required, the applicant must attach a written deer management plan stating their deer management objectives and why they cannot be met through the use of existing deer seasons and deer management permits.

LAND AREA/LOCATION INFORMATION

County(s)	Town(s)	WMU(s)	Farm Service Agency or Tax Map ID Number	Total Acres

Totals and Types of Acreage:

CROPS	FOREST/WOODS/BRUSH	OTHER
____ acres _____ type	____ acres _____ type	____ acres _____ type
____ acres _____ type	____ acres _____ type	____ acres _____ type

REASON FOR DMAP

IF AGRICULTURAL:

Nature and extent of problem: _____

Methods which have been used to control problem: _____

Status of problem in recent years: ☐ Improved ☐ Same ☐ Worse

RECENT HUNTING AND DEER TAKE

Number of hunters who hunted the area last year: _____

Number of deer taken off the lands during the past three deer seasons?

Year	Bucks	Antlerless Deer	Total
____	____	____	____
____	____	____	____
____	____	____	____

Have nuisance deer tags or DMAP tags been requested or issued recently?

Year	Nuisance	DMAP	If issued # of tags	If issued # deer taken
____	☐	☐	____	____
____	☐	☐	____	____
____	☐	☐	____	____

Figure 6: DMAP application (First Page).[251]

250. N.Y. DEP'T ENVTL. CONSERVATION, DEER MANAGEMENT ASSISTANCE PERMIT, http://www.dec.ny.gov/animals/33973.html (last visited Oct. 4, 2014). Additionally, landowners with at least 1,000 contiguous acres can obtain DMAP permits to improve hunting opportunities on their land. Landowners may receive up to one DMAP tag per fifty acres subject to the plan (up to 20 tags for minimum 1,000 acres). Yet each landowner can only utilize two DMAP tags herself. N.Y. COMP. CODES R. & REGS. tit. 6, § 1.30(h) (2014).

B. Deer Damage Permits (DDPs)

Unlike DMAPs, DDPs are typically used outside of the hunting season; also, they are usually granted to control small and isolated populations.[252] The DEC issues DDPs when deer become "a nuisance, destructive to public or private property or a threat to public health or welfare."[253] Specifically, DDPs are issued when deer cause "damage to agricultural crops, ornamental plants, or gardens, as well as health and safety concerns such as on airport grounds."[254] Even under the DDP permits, however, firearms cannot be used within 500 feet of a "dwelling, farm, or occupied structure," nor from a motor vehicle, across a public highway, and within 500 feet of a church, school, playground, or occupied factory.[255]

Specific conditions for each DDP permit may apply. For example, the Cayuga Heights permit states that: "Deer carcasses must be made available to venison donation programs" and prohibits the use of chemical agents.[256] Joule explains about this type of permit that, "There's no real legal definition [of nuisance]. The guideline that we've gone by is that if there's visible damage in the eyes of the person who is claiming the damage, then a nuisance permit [can be] issued."[257] DDP permits are very specific. Joule tells me that if bucks are rubbing antlers on Christmas trees and damaging them, a permit may be issued to take bucks in that area.[258] DDPs are sometimes at odds with local laws. If hunting is prohibited by local ordinances, those will override the DDP permits.

Unlike the various licenses, privileges, and tags, and unlike DMAPs, actions taken pursuant to DDPs are not considered recreational hunting and are thus not governed by hunting statutes nor by traditional fair chase norms. Batcheller explains that, "they're actually not hunting, they're killing a deer under a completely different legal authority, [which is called culling]."[259]

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251. N.Y. Dep't Envtl. Conservation, *Deer Management Assistance Program Application*, http://www.dec.ny.gov/docs/wildlife_pdf/dmapapp.pdf (last visited Oct. 4, 2014).

252. Interview with Steven Joule, *supra* note 102.

253. N.Y. ENVTL. CONSERV. LAW § 11– 0521 (McKinney 2005 & Supp. 2014).

254. N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, infra* app. A, at 1.

255. Div. Fish, Wildlife & Marine Res., N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, Permit Number 2558*, *infra* app. B, at 1 (Nov. 15, 2011).

256. *Id.* at 2.

257. Interview with Steven Joule, *supra* note 102.

258. *Id.*

259. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

This difference in terminology is not only a formality; rather, it signals the deep cultural and legal significance associated with the human killing of animals under different circumstances and conditions. Unlike instances in which certain species are fixed into specific legal and cultural categories—such as "endangered," "farm," or "pest"—deer increasingly travel between the categories: the very same deer can be defined at one moment as a wild animal and, as such, as subject to hunting, and at the next moment as a nuisance and thus as subject to culling.[260]

Further reflective of the distinction between hunting and culling, DDPs (typically perceived as culling permits) often permit killing tactics that are prohibited in traditional sport hunting ethics, including the use of bait, night hunting, spotlights, types of rifles prohibited for deer hunting, et cetera.[261] Joule explains, accordingly, that "nuisance permits are not considered hunting. [They are] done outside of the hunting season . . . [and] on a very local scale. . . [T]hings that you couldn't do during regulated hunting [seasons] . . . don't necessarily apply with nuisance permits."[262] DDPs also permit killing deer by using sedation coupled with lethal injection, as well as stunning with a penetrating captive bolt, followed by exsanguinations.[263] Such lethal methods are more commonly associated with criminal executions and slaughterhouses, respectively. Arguably, this change in killing method signifies the different classificatory status of deer in two managerial discourses: whereas the hunting discourse configures the deer as a wild and protected animal, in the discourse of nuisance the same animal is categorized somewhere between "pest" and "wild."

Garry Marvin's work reflects on the category of "pest," and his insights are partially applicable to nuisance animals. In his words, "humans regard [pests] as transgressive animals and often, more strongly, as enemies that provoke emotional reactions ranging from annoyance or anger to repulsion and disgust . . . They are destructive when they kill and eat domestic livestock or eat crops, and they are polluting when they are simply present in places where humans think they ought not to be. . . The means of killing should be efficient and effective, but it is the

260. *See also* Braverman, *supra* note 90, where I discuss the fluidity and fixity of animals between and within different legal categories.

261. N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, infra* app. A, *supra* 239 at 1; Div. Fish, Wildlife & Marine Res., N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, Permit Number* 7-13-7935, *infra* app. C, *supra* 145 (2013).

262. Interview with Steven Joule, *supra* note 102.

263. N.Y. Dep't Envtl. Conservation, *Permit to Take or Harass Nuisance or Destructive Wildlife, infra* app. A, *supra* 239 at 1.

actual death, in and of itself, of the animal that is wished for or desired."[264] Next, Marvin points to the radically different significance of killing in sport hunting: "There is certainly the hope and an intention to kill an animal, but how that animal is found and how it is killed is far more important than the mere fact that it is killed."[265]

Of the different types of permits for killing deer, DDPs are thus the furthest removed from hunting. The single goal of DDPs is the control of deer populations, as opposed to DMAPs' dual goals of population control and expanded hunting opportunities. This is also one of the reasons why DDPs "generally are not available during an open deer hunting season."[266] Rawinski explains that hunters "have paid the state for the privilege of harvesting one of their [animals], [so] the feeling is that they shouldn't have to compete with a group that is out culling the deer."[267]

Given that bait, spotlights, and otherwise prohibited hunting implements are permitted for DDP permits, such permits are likely to be the most effective way to address specific deer nuisance problems. Despite this, the DEC does not make it a secret that their preferred method for managing deer populations is through recreational hunting activities supplemented with DMPs or DMAPs.[268] According to the DEC, "[s]uccessful management hinges on hunters being allowed adequate access so that they may take sufficient numbers of antlerless deer, most importantly adult does."[269] As stated earlier, one of the guiding principles of the DEC is that the public shall not be caused to suffer from the damaging effects of resident wildlife.[270] The DEC prefers to achieve this objective in such a manner that also provides hunting opportunities.

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264. Marvin, *supra* note 22, at 18. *See also* HOON SONG, PIGEON TROUBLE: BESTIARY POLITICS IN A DEINDUSTRIALIZED AMERICA (2010) (discusses Labor Day Pigeon Shoots—large communal fests in rural Pennsylvania—and their transformation from community events to sensational demonstrations of killing, which have in turn changed the status of pigeons from a wholesome food to pests).

265. Marvin, *supra* note 22, at 19.

266. N.Y. DEP'T ENVTL. CONSERVATION, LANDOWNER'S GUIDE FOR MANAGING DEER, http://www.dec.ny.gov/animals/7199.html#DMAP (last visited Oct. 4, 2014).

267. Interview with Tom Rawinski, *supra* note 76. Additionally, unlike DMAP permits, the DEC may limit the methods utilized by DDPs to non-lethal harassment of deer. N.Y. DEP'T ENVTL. CONSERVATION, LANDOWNER'S GUIDE FOR MANAGING DEER, http://www.dec.ny.gov/animals/7199.html#DMAP (last visited Oct. 4, 2014).

268. N.Y. DEP'T ENVTL. CONSERVATION, LANDOWNER'S GUIDE FOR MANAGING DEER, http://www.dec.ny.gov/animals/7199.html#DMAP (last visited Oct. 4, 2014).

269. *Id.*

270. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 22.

XI. CONCLUSION

"Deer management is not that complicated; it's the people management that's extremely complicated… [Y]ou have to satisfy the needs of a hunter who wants more deer, a farmer who wants less deer, a resident who wants to see deer but doesn't want them getting too close… an animal rights group that wants [deer] just to be left alone completely… another group that thinks you should reintroduce wolves to maintain the [deer] population, motorists who are complaining… [and] the municipality that doesn't want to do anything with the park because the park is for walking your dog."

---Steve Joule, DEC Region 7, interview[271]

Historically, modern wildlife conservation management in the United States has evolved hand in hand with sport hunting practices, and the norms that govern both spheres are intertwined in interesting ways. Deploying legal ethnography, this article has attempted to decipher the complex historical and contemporary interrelations between conservation and hunting in the United States from the standpoint of the state wildlife manager, who is often a hunter. Tracing the ways in which these interrelations have manifested in and are reinforced by law, the article has documented their temporal restrictions (seasons and prohibitions against hunting at night), their technological limitations (prohibitions against baiting, spotlighting and using certain implements), and their territorial distinctions (WMUs, the Northern and Southern Zones, and the 500-foot rule). The article has also pointed out that some hunting practices are based in federal and state laws, others are based in DEC regulations and policy as well as in local ordinances, yet still others derive from tradition and, as such, often stand in the way of the law on the books. This already complex regulatory landscape, replete with inner tensions, is further complicated by the distinctions between hunting and nuisance permits.

Let me conclude by offering that this is an important moment for sport hunting in the United States generally, and in convergence with state and federal conservation practices in particular. Since its peak in the mid-1980s,[272] sport hunting in the United States has experienced a sharp decline. Lately, however, there has been a resurgence of interest among what the DEC refers to as "adult-onset hunters"—namely, hunters who were not raised in this tradition but came to it later in life,

271. Interview with Steven Joule, *supra* note 102.
272. DEC DEER MANAGEMENT PLAN, *supra* note 55, at 18.

typically as part of the drive to eat locally.[273] Under these circumstances, wildlife agencies have felt the pressure to help with the recruitment and training of new hunters, and women in particular.[274] Only time will tell how this trend will affect hunting laws, policies, and practices; only time will tell if sport hunting in the United States, as we have known it for the last century at least, will become obsolete. And if hunting will change so dramatically, so, inevitably, will wildlife conservation.

273. Interview with Gordon Batcheller (Aug. 8, 2014), *supra* note 1.

274. Interview with Jay Boulanger, *supra* note 61. For example, one of the six goals of New York State's recent deer management plan is to better understand the dynamics of hunter recruitment and retention and to identify mechanisms to sustain or increase hunter participation. The plan also sets out to "Promote recreational hunting, among all New Yorkers, as a safe, enjoyable and ethical activity and as the primary tool to manage deer populations," and to "[e]stablish deer hunting seasons, regulations, and programs that are effective for deer population management and that encourage hunter participation, recruitment, retention and satisfaction." DEC DEER MANAGEMENT PLAN, *supra* note 55, at 19, 20.

Appendix A: Permit to Take or Harass Nuisance or Destructive Wildlife. Courtesy of Steve Joule, DEC.

Permit to Take or Harass Nuisance or Destructive Wildlife

- **WHAT:** 11-0521 is section of Environmental Conservation Law (ECL) that governs taking (pursuant to permit) of "destructive wildlife".

  ECL 11-0521 authorizes DEC to issue a permit to any person to take wildlife, including deer, whenever it becomes a nuisance, destructive to public or private property, or a threat to public health or welfare.

  When the taking or destruction of menacing wildlife is authorized, such taking is exempt from the requirement of a hunting, big game, or trapping license unless the provision authorizing such taking specifies a license is required.

- **WHY:** damage to agricultural crops, ornamental plants, or gardens, as well as potential health and safety concerns such as on airport grounds.

- **WHEN:** Permits may be issued for the expected duration of the damage. If damage is still current, ongoing, or highly likely to recur upon expiration of the permit, it may be extended.

  Nuisance Wildlife - A **wild animal** that may cause property damage, is perceived as a threat to human health or safety, or is persistent and perceived as an annoyance. Examples include a skunk or fox living under the porch or shed. If an animal is not causing any concern, for example, it is simply passing by, is observed only once or twice and does not cause any harm, then it should not be considered a nuisance.

  Damaging Wildlife - A **wild animal** that **damages property**, for example, digs up your yard, eats your landscape plants or vegetable garden, kills or threatens your livestock or pets, fouls your lawn, eats the fish in your pond, damages your home, etc.

  Nuisance/Damaging Wildlife - A **wild animal** that may cause property damage, is perceived as a threat to human health or safety, or is persistent and perceived as an annoyance. Examples include a skunk or fox living under the porch or shed. If an animal is not causing any concern, for example, it is simply passing by, is observed only once or twice and does not cause any harm, then it should not be considered a nuisance. Example: a **wild animal** that **damages property** (e.g. digs up your yard, eats your landscape plants or vegetable garden, kills or threatens your livestock or pets, fouls your lawn, eats the fish in your pond, damages your home, etc.).

- **HOW:** Potential deer damage permit conditions authorized pursuant to ECL include:
  1. Shooting of deer with either firearm or bowhunting equipment (including crossbow)
  2. Use of nets to confine deer or livestock corral systems to confine deer, allowing the use of normal livestock slaughter procedures for euthanizing deer.

- **Preferred killing methods for licensed NWCOs:**

  1. Shooting (using a shotgun with 20-gauge or larger slugs, a centerfire rifle, or other implement specified in the permit)

  2. Sedation/anesthesia and injection in the heart with potassium chloride (KCL) American Veterinary Medical Association (AVMA Euthanasia report, 2000)

  3. Stunning using a penetrating captive bolt pistol, followed by exsanguinations

Deer Damage Permits

What are Deer Damage Permits and why are they issued?
As a state agency, the New York State Department of Environmental Conservation (DEC) is obligated to consider factors that may be overlooked by an individual or community. Some considerations are required by statute, such as the Fish and Wildlife Law (Environmental Conservation Law [ECL] Article 11; Sections 0105 & 0303) and others are generated by broad resource, social or economic concerns. The core mission of DEC's Bureau of Wildlife (BoW) is stewardship and management of all New York State's free-ranging, native wildlife species. Along with the regulatory authority vested in BoW for this purpose, there are also legal responsibilities. Among these is the directive to develop and carry out programs and procedures which will promote an ecological balance of natural resources on all lands whether owned by the state or held in private ownership. In addition, pursuant to ECL mandate, BoW must ensure that the public is not "caused to suffer inordinately from the damaging effects of, and conflicts arising from, resident wildlife."

Under what circumstances are Deer Damage Permits issued?
ECL 11-0521 authorizes DEC to issue a permit to any person to take wildlife, including deer, whenever it becomes a nuisance, destructive to public or private property, or a threat to public health or welfare. DDPs are used for site-specific management of deer populations where there is damage to agricultural crops, ornamental plants, or gardens, as well as potential health and safety concerns such as on airport grounds.

What times of year are DDPs typically issued?
It depends on the time of damage and the surrounding landscape. Certain types of damage tend to be seasonal in nature to some degree (e.g. pumpkin or Christmas tree farms, and flower or vegetable gardens), but it also depends on the year to year fluctuations in the local deer population and severity of the winter (particularly amount of snow cover), as well as the availability of natural food sources in the surrounding landscape. In an area like Cayuga Heights, where there is an abundance of ornamental shrubbery and very little natural browse to sustain an overabundant deer population with little or no fear of humans, the potential for damage exists year-round. Permits may be issued for the expected duration of the damage. If damage is still current, ongoing, or highly likely to recur upon expiration of the permit, it may also be extended.

Do landowners using a DDP have to follow the same laws as hunters with respect to time of day, method of kill, use of attractants?
Regulated hunting programs are constrained by the laws and regulations (i.e. Environmental Conservation Law) that govern public participation in "hunting" as a recreational activity, including implements legal to discharge, shooting hours, and use of lights and attractants. Actions pursuant to DDPs are not considered hunting and, thus, DDP permittees are not necessarily subject to the same constraints as might a hunter. As such, so long as it does not conflict with any local ordinance, the use of rifles, shotguns, and archery equipment (including crossbows) may be permitted, as may the use of rimfire or centerfire ammunition or shotgun slugs. Shooting during non-daylight hours and use of bait is also commonly authorized to enhance the safety and effectiveness of the culling operation.

Appendix B: Permit to Take or Harass Nuisance or Destructive Wildlife, Permit Number 2558, Cayuga Heights. Courtesy of Steve Joule, DEC.

New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources
Region 7 Wildlife Office
1285 Fisher Avenue
Cortland, New York 13045
(607) 753-3095 Ext. 247

Joseph Martens
Commissioner

PERMIT TO TAKE OR HARASS NUISANCE OR DESTRUCTIVE WILDLIFE PERMIT NUMBER: 2558

Date issued: 11/15/2011 **Permit expires:** Valid until revoked

PERMITTEE:
[redacted]
Village of Cayuga Heights
863 Hanshaw Road
Ithaca, NY 14850

LOCATION OF PROBLEM:
County: **Tompkins**
Town(s): **Ithaca**
Location: **Village of Cayuga Heights**
Phone: [redacted]

Pursuant to ECL sections 11-0505 and 11-0521, you or your Agent may:

☑ kill 85 deer ☐ antlerless deer only

Shooting hours: 1/2 hr before sunrise to 11:00 PM

Other permitted activity: 1. Shooting of deer with either a firearm or bowhunting equipment (*the net and bolt method of euthanization is not authorized by this permit*). **2.** The use of rimfire ammunition, centerfire ammunition, or shotgun slugs is authorized. **3.** Shooting at night, including use of lights to illuminate deer. **4.** Use of bait to attract deer as a means of enhancing both the safety and effectiveness of shooting operations (*baiting is permitted 5 days prior to activities providing a) bait is free of animal proteins, b) ALL bait is removed within 5 days of completion or suspension of activities*).

Special Conditions: See list of special conditions. **Conditions in this section supersede Standard Conditions.**

STANDARD CONDITIONS:

1. You MUST notify the Environmental Conservation Officer at (607) 564-9458 or (607) 283-1494 each time the activities under this permit are to be carried out and any time deer are taken. If the ECO cannot be reached, notify Regional Law Enforcement Dispatch at (315) 426-7431.
2. Only the permittee and agents may act on this permit.
3. Agents must be at least 18 years old and possess a valid NYS hunting license, hunter education certificate, or firearms safety certificate.
4. Persons who have had their NYS hunting privileges revoked or suspended may not act as an Agent on this permit
5. The Agents acting on this permit must sign the attached agent log. The Permittee must retain the signed permit and agent log.
6. Permittee and Agents must possess a copy of the permit and carcass tags when acting on this permit.
7. Permittee must first obtain permission from the landowner before using this permit on leased or rented lands.
8. This permit is only valid for the properties listed on the permit (see "Location of Problem").
9. Permittee and Agents must abide by local firearms ordinances or obtain a written waiver from local authorities and attach to permit.
10. The use of artificial lights is permitted when shooting after sunset.
11. This permit is not valid during any open deer hunting season in the area used.
12. The DEC has the right to inspect any building, structure or property used for any activity pursuant to this permit.
13. All deer must be properly tagged and reported.

ENVIRONMENTAL CONSERVATION LAW:

- Possession of a loaded firearm in or on a motor vehicle is prohibited.
- Shooting from a motor vehicle, across any part of a public highway, or within 500 ft. of a school, playground, occupied factory or church is prohibited.
- Shooting within 500 ft. of a dwelling, farm building, or occupied structure is prohibited unless the shooter owns or leases the building or has the owner's written consent.

AGREEMENT TO CONDITIONS

I have read and fully understand the above permit conditions and agree to abide by them. Further, I am aware that failure to comply with any conditions of this permit may result in its revocation, denial of future permits, and violations and/or fines.

Permittee signature: _____ **Date:** _____

New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources, Region 7
Bureau of Wildlife
1285 Fisher Avenue, Cortland, New York 13045-1090
Phone: (607) 753-3095 • **Fax:** (607) 753-8532
Website: www.dec.ny.gov

Joseph Martens
Commissioner

Special Conditions for Nuisance Deer Permit 2558 (Village of Cayuga Heights).

1. Deer must be euthanized without the use of chemical agents. This is needed to make sure that the meat is suitable for human consumption.
2. Deer carcasses must to be made available to venison donation programs so that all meat is put to good use.
3. Deer may only be euthanized using firearms or bowhunting equipment. The net and bolt method of euthanization is not authorized by this permit.
4. All capture devices must be clearly marked with the permittees name and permit number.
5. This permit is not valid during any open deer hunting season in the area used.
6. All bait must be removed within 5 days of completion of activities.
7. Any and all antlers from euthanized deer must be surrendered to the DEC Region 7 Wildlife Office.
8. The permittee shall provide a scientific report (including an evaluation of the effect of deer removals) to the DEC Region 7 Regional Wildlife Manager by December 31 of each calendar year in which the permit is valid and utilized.
9. Agents on this permit must be identified and approved by DEC prior to the activities on this permit being carried out. For approval by DEC, Agents must provide evidence of training with the use of all capture and euthanization techniques to be employed.
10. Any Agents financially compensated for actions covered by this permit must possess a Nuisance Wildlife Control Operator's License as per ECL section 11-0524.
11. Law enforcement personnel are the *ONLY* Agents authorized to shoot from a motorized vehicle.
12. This permit is valid only for use on property where the landowner has granted permission for its use.

Pursuant to the recommendations outlined in the Village of Cayuga Heights Deer Management Plan, this permit authorizes the permittee to take 85 total deer (does or bucks) subsequent to the initial sterilization phase of the plan. In order for the permit to be amended to allow more than 85 deer to be harvested, the permittee must submit a written request that includes justification for the removal of additional deer from the population (e.g. management objective not yet reached, population found to be higher than originally estimated, population has increased since issuance of permit, etc.).

These permit conditions are fully enforceable as per the "Agreement to Conditions" signed by the permittee on the "Permit To Take Or Harass Nuisance Or Destructive Wildlife".

Appendix C: Permit to Take or Harass Nuisance or Destructive Wildlife, Permit Number 7-13-7935, Cayuga Heights. Courtesy of Steve Joule, DEC.

New York State Department of Environmental
Conservation Division of Fish, Wildlife and Marine
Region 7 Wildlife Office
1285 Fisher Avenue, Cortland, New York
13045 (607) 753-3095 x 247

Joseph Martens
Commissioner

PERMIT TO TAKE OR HARASS NUISANCE OR DESTRUCTIVE WILDLIFE

Year Issued: **2013** Permit Number: **7-13-7935**

Permittee Information:

Cornell University
[redacted] [redacted]
[redacted]
Itaca NY 14853

Home Phone: [redacted]
Work Phone: [redacted]
Fax:

Location of Problem:

County: Tompkins Town: Ithaca
Location: Cornell University core campus area; 14 shooting locations as indicated on map provided by applicant.

Pursuant to ECL sections 11-0505 and 11-0521, you or your agent (designated in writing)

☐ Scare/ Harass Deer

TAKE THE FOLLOWING NUMBER OF ANTLERLESS DEER: 20

Tags numbers issued: 024001 - 024020

Other Permitted Activities:
See list of Special Conditions.

Permit Issued: 12/18/2013 **Permit Expires:** 12/31/2013

Firearms May Be Discharged Between The Hours Of: 1/2 hour before sunrise and 11:00 P.M.

☐ When checked, 0 (#) deer must be donated to the Venison Donation Program. See enclosed list of Venison Donation participants.

☐ When checked, the Division of Law Enforcement (see number below) must be given 24 hours advance notice of any shooting activity.

Regional Law Enforcement Office (315) 426-7431

SEE ATTACHED SHEET FOR STANDARD CONDITIONS

*** AND SIGNATURE BLOCK ***

New York State Department of Environmental Conservation
Division of Fish, Wildlife and Marine Resources, Region 7
Bureau of Wildlife
1285 Fisher Avenue, Cortland, New York 13045-1090
Phone: (607) 753-3095 • **Fax:** (607) 753-8532
Website: www.dec.ny.gov

Joseph Martens
Commissioner

Special Conditions for Nuisance Deer Permit 7-13-7935 (Cornell University).

1. Other permitted activity:
   - ✓ Shooting of deer with either a firearm or bowhunting equipment (including crossbow).
   - ✓ Shooting at night, including use of lights to illuminate deer.
   - ✓ Use of bait to attract deer as a means of enhancing both safety and effectiveness of shooting operations. Baiting is permitted providing the bait is free of animal proteins and bait is removed within 5 days of completion of activities ***OR*** before the start of any open deer hunting season in the area, whichever occurs first.

2. This permit is valid only for use on the property where the landowner has granted permission for its use ***AND*** only at the sites identified on the attached map.

3. This permit is not valid during any open deer hunting season in the area used.

These permit conditions are fully enforceable as per the "Agreement to Conditions" signed by the permittee on the "Permit To Take Or Harass Nuisance Or Destructive Wildlife".

STANDARD CONDITIONS FOR DEER DAMGE PERMIT

1. Permit is not valid until the AGREEMENT TO CONDITIONS (below) is signed by the Permittee and an agent may not exercise the rights of this permit until signing the LOG OF AGENTS (reverse).
2. The Permittee must maintain a LOG OF AGENTS (reverse) who may use the permit and all agents must complete and sign the log prior to using this permit.
3. Only the Permittee and designed Agents may be afield when exercising the rights of this permit and they must have in their possession an unused carcass tag and copy of this permit when afield.
4. Permittee and Agents must abide by local firearms discharge ordinances or obtain a written waiver from local authorities. If a waiver is required, it must be attached to the permit.
5. Agents must be at least 18 years of age and possess a valid NYS hunting license, hunter education certificate, or certificate of safe firearms training.
6. Persons who have had their NYS hunting privileges revoked or suspended may not serve as an Agent.
7. Permittee must have landowner permission before using this permit on leased or rented lands.
8. This permit is valid only on lands owned, rented or leased by the Permittee, where damage is occurring, as specified in the permit.
9. The Permittee is responsible for any property damage caused by the Agents while using the permit.
10. The use of artificial lights is permitted when shooting after sunset.
11. The DEC has the right to inspect, at any time, the LOG OF AGENTS, unused carcass tags and any building, structure, vehicle or property used for any activity pursuant to this permit.
12. NO ONE MAY SELL: (1) a nuisance permit, (2) a carcass tag, (3) a deer shot on a permit, (4) the ability to be an agent on a permit, or (5) the opportunity to shoot a deer on a permit.

TAGGING, PROCESSING AND REPORTING DEER:

13. All unused carcass tags must be retained on the property subject to this permit.
14. Upon taking a deer, a carcass tag shall be immediately completed using an indelible pen, pencil or marker and attached to the deer, except that the tag need not be attached while the deer is being dragged or physically carried to home, farm building or motor vehicle.
15. Every effort should be made to use any deer taken for human consumption.
16. WITHIN 10 DAYS of the expiration date, the Permittee must return the completed Summary Report form to the DEC office listed on the permit. Failure to report can be grounds for denial of future permit requests.
17. Upon expiration of this permit, unused carcass tags must be destroyed.

ENVIRONMENTAL CONSERVATION LAW

- Possession of a loaded firearm in or on a motor vehicle is prohibited.
- Shooting from a motor vehicle or across any part of a public highway is prohibited.
- Shooting within 500 feet of a school, playground, or occupied structure is prohibited.
- Shooting within 500 feet of a dwelling, farm building, or occupied structure is prohibited unless the shooter owns or leases the building or has the owners written consent

AGREEMENT TO CONDITIONS

This permit is not valid until signed below. Failure to comply with the conditions outlined above and elsewhere in this permit may result in the revocation of this permit and denial of future permits and may be considered violations of state and local laws.

I have read and fully understand the above permit conditions and agree to abide by them.

Permittee Signature:_____ **Date:**_____

Deer Damage Permit LOG OF AGENTS:

Every Agent shooting on this Deer Damage Permit must read and abide by all the Permit Conditions. In addition, each Agent must read the certification below and print their full name, address, phone number, date of birth, and sign their full name prior to exercising the privileges of this permit.
By signing this form I agree that I have read, fully understand, and agree to abide by all of the attached Permit Conditions and that I have successfully completed NYS hunter education or other firearms safety training and that my NYS hunting privileges have not been revoked or suspended.

Print Full Name	Address	Phone Number	Date of Birth	Signature
				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law
				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law
				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law
				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law
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				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law
				I have read and understand the permit conditions and the above heading and affirm under penalty of perjury that all information is true pursuant to section 210.45 Penal Law

JUSTIFICATION FOR NUISANCE DEER HUNTING ON CORNELL LANDS

During the past five years, Cornell University has addressed chronic deer overpopulation on its lands through an integrated deer research and management program (IDRM). The program was designed to reduce unacceptable damage to University resources and plant collections, preserve the teaching and research mission of the University, and to reduce associated human-health and safety risks such as Lyme disease and deer-vehicle accidents.

The IDRM program utilized surgical sterilization of female deer on campus and regulated hunting near campus in an attempt to achieve its deer management goals. Despite large numbers of hunters harvesting over 500 deer and 92 sterilization surgeries over the last 5 years, there has not been an appreciable reduction in deer numbers; the campus deer population remains stable at approximately 100 deer. Consequently, substantial ecological and economic damage has continued along with serious human health concerns from a spike in the number of Lyme disease cases contracted in the county — including Cornell employees (please see the attached Cornell University IDRM's executive summary for additional details). During the last 4 years, Lyme disease in Tompkins County has increased 1,089%.

In 2012, the IDRM program's funding was reduced by two-thirds. Subsequently the university formed an internal Deer Management Committee to review the current deer management program goals and methods, and to evaluate new management options. The committee, comprised of representatives of units affected by deer overpopulation and their impacts, considered the full range of options, including maintaining the status quo, expanding hunting opportunities, and utilizing New York State Department of Environmental Conservation (DEC) nuisance deer-control permits. Committee members also considered extreme options such as cessation of deer management activities and hiring sharpshooters to cull the herd.

After a careful review, committee members — including staff currently charged with overseeing Cornell's deer management programs — strongly supported the option of expanding herd reduction efforts on campus through the use of DEC nuisance permits.

If approved by the University and the DEC, the use of nuisance deer permits would be tightly controlled (See Attachment A for proposed conditions). A Deer Permit Coordination Group would select a small group of highly trained and proficient hunters to safely and efficiently harvest antlerless deer outside of the regulated NYS deer-hunting season. This activity would take place over a one-month period in designated areas selected for being discrete and safe (see Attachment C), that are currently in the campus deer sterilization zone. Once the harvest is complete, the internal Deer Permit Coordination Group would evaluate the use of DEC nuisance permits to determine if it has accomplished the deer population reduction and associated damage-reduction goals set forth in Cornell's Deer Management Plan for 2013.

PLANNING AND PERMITTING TO REDUCE AND RESPOND TO GLOBAL WARMING AND SEA LEVEL RISE IN FLORIDA

RICHARD GROSSO*

I. INTRODUCTION: THE THREAT

The United States Supreme Court has recognized the impacts of climate change to include "a number of environmental changes that have already inflicted significant harms, including 'the global retreat of mountain glaciers, reduction in snow-cover extent, the earlier spring melting of rivers and lakes, [and] the accelerated rate of rise of sea levels during the 20th century relative to the past few thousand years.'"[1] Sea level rise is expected to "erode beaches; drown marshes and wetlands; damage barrier islands, habitat, and ecological processes; cause saline intrusion into freshwater ecosystems and groundwater; increase flooding or inundation of low-lying areas; and damage or destroy private and public property and infrastructure."[2]

Florida is the single most vulnerable of the 50 states to higher tides associated with sea level rise.[3] "Florida is especially vulnerable to the effects of sea-level rise. It has more than 1,200 miles of coastline, almost 4,500 square miles of estuaries and bays, and more than 6,700 square miles of other coastal waters. The entire state lies within the Atlantic Coastal Plain, with a maximum elevation less than 400 feet above sea level, and most of Florida's 18 million residents live less than 60 miles from the Atlantic Ocean or the Gulf of Mexico. Three-fourths of Florida's

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* The author thanks Erin Deady, Esq., Jacki Lopez, Esq., of the Center for Biological Diversity, Thomas Ruppert, Esq., of the University of Florida Sea Grant program, AND Jason Totoiu, Esq., of the Everglades Law Center, Inc., for their many contributions of ideas, analysis, and information which can be found throughout this article, and NSU law students Billie Brock, Candice Cobb, Renaldo Diaz, Christopher Dutton, Glenn Hasson, Marvel Pauyo, Amber Roucco, and Sean Schwartz, and for their excellent research and analysis skills.

1. Massachusetts v. EPA, 549 U.S. 497, 521 (2007) (alteration in original) (quoting COMM. ON THE SCI. OF CLIMATE CHANGE, NAT'L RESEARCH COUNCIL, CLIMATE CHANGE SCIENCE: AN ANALYSIS OF SOME KEY QUESTIONS 16 (2001)).

2. Jessica A. Bacher and Jeffrey P. LeJava, *Shifting Sands and Burden Shifting: Local Land Use Responses to Sea Level Rise in Light of Regulatory Takings Concerns*, 35 ZONING & PLANNING L. REP. 1, 1 (2012) (citing Jessica A. Bacher, *Yielding to the Rising Sea: The Land Use Challenge*, 38 REAL EST. L.J. 96, 96 (2009)).

3. Letter from Center for Biological Diversity to FEMA, 7, 9 & nn.37 & 46 (Jul. 16, 2012) (citing Gillis, Justin. Mar. 13, 2012. Rising Sea Levels Seen as Threat to Coastal U.S. The New York Times; Schlacher 2008 (article on sea level rise threats to the U.S.); Tebaldi, C., B. H. Strauss, and C. E. Zervas. 2012. Modeling sea level rise impacts on storm surges along US coasts. Environmental Research Letters 7:014032 (on sea level impacts in the U.S.).

population resides in coastal counties that generate 79% of the state's total annual economy. These counties represent a built-environment and infrastructure whose replacement value in 2010 is $2.0 trillion and which by 2030 is estimated to be $3.0 trillion."[4] As of 2014, over 60% of the state's beaches were experiencing erosion, as Florida had "407.3 miles of critically eroded beach, 8.7 miles of critically eroded inlet shoreline, 93.9 miles of non-critically eroded beach, and 3.2 miles of non-critically eroded inlet shoreline" [5] "Critical" erosion is that which has occurred to the extent that "upland development, recreational interests, wildlife habitat, or important cultural resources are threatened or lost." [6] The primary "causes of erosion and beach migration in Florida are inlet management, storms, sea-level rise, and armoring."[7]

Florida's "topography is relatively flat," such that "minor increases in sea level can cause beaches to migrate far landward."[8] This "shoreline recession" varies greatly throughout the state, which is estimated to "be subject to 500 to 1,000 feet of shoreline recession for each foot of sea level rise."[9] Much of Florida is already experiencing increased tidal flooding from sea level rise[10], and the state has experienced eight to nine inches of rise over the past 100 years.[11] Southeast Florida is particularly vulnerable. A 2008 report

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4. FLA. OCEANS & COASTAL COUNCIL, CLIMATE CHANGE AND SEA-LEVEL RISE IN FLORIDA: AN UPDATE OF THE EFFECTS OF CLIMATE CHANGE ON FLORIDA'S OCEAN & COASTAL RESOURCES 1-2 (2010), *available at* https://campus.fsu.edu/bbcswebdav/pid-7223093-dt-content-rid-41296749_3/orgs/SCD_5539_org/Climate_Change_and_Sea_Level_Rise.pdf.

5. *CRITICALLY ERODED BEACHES IN FLORIDA*, FLA. DEP'T OF ENVTL. PROT (2014). Id at 3. (available at http://www.dep.state.fl.us/beaches/publications/pdf/CriticalEroionReport.pdf)

6. *Id.* at 5.

7. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 66–67 (2008) (citing BUREAU OF BEACHES & COASTAL SYS., FLA. DEP'T OF ENVTL. PROT., STRATEGIC BEACH MANAGEMENT PLAN 1 (2008)).

8. *Id.* at 68.

9. *Id.* (citing ROBERT E. DEYLE ET AL., ADAPTIVE RESPONSE PLANNING TO SEA LEVEL RISE IN FLORIDA AND IMPLICATIONS FOR COMPREHENSIVE AND PUBLIC-FACILITIES PLANNING (2007)).

10. Thomas Ruppert & Carly Grimm, *Drowning in Place: Local Government Costs and Liabilities for Flooding Due to Sea-level Rise*, 87 FLA. BAR J. 29 (2013), *available at* http://www.floridabar.org/DIVCOM/JN/JNJournal01.nsf/8c9f13012b96736985256aa900624829/d1cd8a7e6519800885257c1200482c39!OpenDocument. Moreover, as the article explains, "The roughly four and one-half inches of rise in the last 50 years has decreased the efficiency of some older stormwater systems designed to function with lower sea levels. As a result, tidal waters back up within the drainage systems and stormwater systems drain slower, causing more frequent flooding. Tens of billions of dollars of real estate in Florida are potentially at risk due to [sea-level rise] and its commensurate flooding." *Id.* (citing SE. FLA. REG'L CLIMATE CHANGE COMPACT CNTYS., A REGION RESPONDS TO A CHANGING CLIMATE: REGIONAL CLIMATE ACTION PLAN 9 (2012)).

11. *Id.* (citing *Key West Data*, PERMANENT SERVICE FOR MEAN SEA LEVEL, http://www.psmsl.org/data/obtaining/stations/188.php (last updated Feb. 11, 2014).

of the Miami-Dade County Task Force on Climate Change reported that:

> Miami-Dade County as we know it will significantly change with a 3-4 foot sea level rise. Spring high tides would be at about + 6 to 7 feet; freshwater resources would be gone; the Everglades would be inundated on the west side of Miami-Dade County; the barrier islands would be largely inundated; storm surges would be devastating; [and] landfill sites would be exposed to erosion [,] contaminating marine and coastal environments.[12]

The local, state, and federal agencies with the police power responsibility to protect Florida and its citizens must be prepared to take the challenging but necessary actions essential to our state's resiliency. Political leaders at all levels of government must be prepared to use all of the policy and regulatory tools available to meet the challenge of climate and sea level change. This article describes those tools.

A. The Legal & Policy Issues

Florida law provides many existing legal mechanisms to increase our capability to reduce and respond to the impacts of global warming and sea level rise. This article will focus primarily on climate *adaptation* [13] strategies, discussing the legal/policy

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12. John R. Nolon, *Regulatory Takings and Property Rights Confront Sea Level Rise: How Do They Roll?*, 21 WIDENER L.J. 735, 737 (2012) (alterations in original) (quoting MIAMI-DADE CNTY. CLIMATE CHANGE ADVISORY TASK FORCE, SECOND REPORT AND INITIAL RECOMMENDATIONS 4 (2008).

13. *See generally* Robert R.M. Verchick & Abby Hall, *Adapting to Climate Change While Planning for Disaster: Footholds, Rope Lines, and the Iowa Floods*, 2011 BYU L. Rev. 2203 (2011) (discussing how preexisting laws and standards could be used to allow for the integration of climate control concerns and how dynamic networks of public and private stakeholders can aid in this adaptive effort). In defining climate adaption, the article states, "The U.N. Intergovernmental Panel on Climate Change (IPCC) defines climate change adaptation as 'the adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects.' The concept recognizes that climate impacts have occurred and are continually occurring; it presumes that many of these trends will inevitably continue to some degree, independent of our efforts to reduce greenhouse gases ('mitigation'). Adaptation aims to lessen the magnitude of these impacts through proactive or previously planned reactive actions. As the IPCC said, 'Mitigation will always be required to avoid "dangerous" and irreversible changes to the climate system. Irrespective of the scale of mitigation measures that are implemented in the next 10–20 years, adaptation measures will still be required due to inertia in the climate system.' Or, as President Obama's science advisor, James Holdren, explains, 'We must avoid the climate impacts we can't manage and manage the climate impacts we can't avoid.'" *Id.* at 2209 (footnotes

implications of comprehensive land use planning and environmental policies and strategies that can be effective in responding to climate change, sea level rise, and storm surge and related problems. It focuses on the climate mitigation strategies that can be pursued under Florida law. Particular emphasis is placed on the enforcement of such laws in ways that, at the same time, both reduce human contributions to climate change and increase a community's adaption/resiliency [14] capabilities. [15] The article also addresses the property rights implications for governmental regulatory responses, and legal aspects of regulating in the face of scientific dispute/uncertainty.

II. THE LEGAL TOOLS

A. Florida's Comprehensive Land Use Planning Law

1. Land Use and Zoning Authority: Where and How We Live & Build[16]

"Zoning is the most powerful tool that local governments have to preemptively mitigate hazards."[17]

"Land use planning in essence chooses particular uses for the land; environmental regulation, at its core, does not mandate particular uses of the land but requires only that, however the

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omitted).

14. "The United Nations (U.N.) International Strategy for Disaster Reduction defines 'resilience' in this context as '[t]he ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.'" Nolon, *supra* note 12, at 769 (quoting *Terminology*, UNITED NATIONS INT'L STRATEGY FOR DISASTER REDUCTION, http://www.unisdr.org/we/inform/terminology (last updated Aug. 30, 2007)).

15. *See* U.S. ENVTL. PROT. AGENCY, NATIONAL WATER PROGRAM 2012 STRATEGY: RESPONSE TO CLIMATE CHANGE 24 (2012), *available at* http://water.epa.gov/scitech/climatechange/upload/epa_2012_climate_water_strategy_full_report_final.pdf ("Adaptation and mitigation go hand in hand . . . .").

16. *See* SE. FLA. REG'L CLIMATE CHANGE COMPACT CNTYS; *A Region Responds to a Changing Climate*, Southeast Florida Regional Climate Change Compact Counties, Regional Climate Action Plan *Id* at 14. (available at http://www.southeastfloridaclimatecompact.org//wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf) (Last visited March 22, 2015) (Hereafter "Southeast Florida Regional Climate Action Plan"). RG: also, im attaching that source document for you.

17. JESSICA GRANNIS, GEORGETOWN CLIMATE CTR., ZONING FOR SEA-LEVEL RISE: A MODEL SEA-LEVEL RISE ORDINANCE AND CASE STUDY OF IMPLEMENTATION BARRIERS IN MARYLAND 2 (2012), *available at* http://www.georgetownclimate.org/sites/www.georgetownclimate.org/files/Zoning%20for%20Sea-Level%20Rise%20Executive%20Summary%20Final.pdf.

land is used, damage to the environment is kept within prescribed limits."[18] The most important and effective adaptation strategies (and many of the mitigation strategies) have everything to do with where and how we build buildings and infrastructure. The key mechanisms through which local governments influence the rate and extent of climate change and adaptation are planning and zoning, infrastructure, and budget decisions. A successful state response to the challenge of climate and sea level rise changes begins with, and cannot be achieved without, effective land use planning and zoning.

In what may be the leading regional collaboration effort in the country, the Regional Climate Action Plan is a collaborative plan for informal coordination among local governments in Southeast Florida developed under the auspices of the Southeast Florida Regional Climate Change Compact and adopted by Monroe, Miami-Dade, Broward and Palm Beach counties and several municipalities. The Plan calls for "concerted action in reducing greenhouse gas emissions and adapting to regional and local impacts of a changing climate," through locally tailored application of 110 action items under seven goal areas over the next five years.[19] The policy recommendations will be implemented through, among other things, (1) "existing legal structures, planning and decision-making processes"; (2) "development of new policy guiding documents", with mutually "consistent goals and progress indicators," by local and regional governing bodies; and (3) "processes for focused and prioritized investments."[20]

B. Avoiding the Hazard

"Avoiding the hazard is the best way to deal with coastal hazards."[21]

Writing in 2008 about the history of coastal development in Florida, Ruppert observed that "[c]onstruction sited sufficiently landward of the active beach to allow for natural shoreline migration effectively minimizes coastal hazards to development, protects natural ecosystems, and reduces the multi-million-dollar yearly cost of beach nourishment and armoring. In many instances, past developers built too close to the beach, resulting

18. Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs, 531 U.S. 159, 191 (2001) (Stevens, J., dissenting) (quoting Cal. Coastal Comm'n v. Granite Rock Co., 480 U.S. 572, 587 (1987) (internal quotation marks omitted).

19. SE. FLA. REG'L CLIMATE CHANGE COMPACT CNTYS., *supra* note 17, at v-vi.

20. *Id.* at vi.

21. Ruppert, *supra* note 6, at 97.

in high losses from storms and exorbitant costs for rebuilding, armoring, and nourishing of beaches."[22]

The most important factor that will determine the future of an area is how it is zoned—whether the type and intensity of use allowed by the local government is inherently suited for the natural character of the land now and in the future. Continuing to allow development in vulnerable areas, or to encourage investment and infrastructure and loss of coastal and floodplain natural features, will ultimately preclude landward migration of beach and floodplain ecosystems and commit unsustainable amounts of public resources to protection efforts.

C. Comprehensive Plans as a Powerful Legal Tool

Florida's Community Planning Act requires each local government to adopt and maintain a comprehensive plan that meets identified standards in state law and which governs all subsequent zoning and development decisions [23] by the local government.[24]

Two Florida cases in particular strongly support a local government's ability to "down-plan" or "down-zone" property whenever there are valid land use planning reasons to do so, and so long as the resulting restrictions do allow some economically viable use.

The Act requires local governments to plan for projected growth, ensure the adequate provision of necessary infrastructure and services, and protect environmental resources.[25]

Comprehensive plans make the basic policy decisions about the type and intensity/density of land uses, based on "the big picture" evaluation of all relevant issues. The Act's provisions concerning the provision of or payment for necessary infrastructure by developers, and its provisions concerning the factors used to

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22. *Id.*

23. "A local comprehensive land use plan is a statutorily mandated legislative plan", similar to a "constitution," "to control all future development within a county or municipality." Citrus Cnty. v. Halls River Dev., Inc., 8 So.3d 413 (Fla. Dist. Ct. App. 2009) (citing FLA. STAT. § 163.3167(1) (2005); Machado v. Musgrove, 519 So.2d 629, 631–32 (Fla. 1st DCA 1987)). *See also* Galaxy Fireworks, Inc. v. City of Orlando, 842 So. 2d 160, 165 (Fla. 3d. DCA 2003); Home Builders & Contractors Ass'n of Brevard, Inc. v. Dep't of Cmty. Affairs, 585 So. 2d 965, 966 (Fla. 1st DCA 1991).

24. *See* FLA. STAT. § 163.3167 (2014) (requiring the adoption of comprehensive plans to guide future development and growth); FLA. STAT. § 163.3177 (setting out required and optional elements of comprehensive plans); FLA. STAT. § 163.3194 (requiring land development regulations to be consistent with comprehensive plans) (2013).

25. *Id.*

determine the appropriate amount, location and types of development are important legislative requirements for the financial and ecological sustainability of land use plans. Comprehensive planning decisions are legislative, and subject to the most deferential standards of judicial review.[26]

The greatest level of discretion applies to decisions that decline to amend an existing comprehensive plan, which will be upheld only where a plaintiffs meets the burden of proving a constitutional violation – for example a property rights violation – or that the denial was not even "fairly debatable". Any valid planning rationale will uphold the decision.[27] Thus, statutory authority for, and the nature of, local government comprehensive planning decisions tends to provide for local governments a significant amount of discretion to prohibit land uses that are potentially inconsistent with the current and projected realities of sea level rise and storm surge.[28]

A decision to approve a plan amendment also involves discretion. Challengers have a difficult burden of proving that the decision fails to comply with state law.[29] Because plan amendments must comply with state law, their adoption is somewhat less discretionary than are decisions declining to amend a plan. That law however, generally supports comprehensive plan amendments designed to reduce or respond to climate and sea level rise impacts.[30]

A key implication of the legislative nature of planning decisions, which require local elected officials to weigh and balance myriad, often unquantifiable, considerations is that even very strict limits on development, such as development caps, will not be overturned by courts so long as they are based on study, and not arbitrary or unconstitutional.[31]

The next section of this article will highlight Florida's *Community Planning Act* to describe the ample legal available to

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26. Martin Cnty v. Yusem, 690 So. 2d 1288, 1295 (Fla. 1997); Brevard County v. Snyder, 627 So. 2d 469 (Fla. 1993).

27. *Yusem*, 690 So. 2d at 1295 (Fla. 1997).

28. This is true, notably in the face of private property rights, of planning actions that reduce the type and intensity of uses allowed in vulnerable areas and even more so for decisions declining to amend comprehensive plans to allow more intensive uses.

29. FLA. STAT. § 163.3184(5)(c)1 (2014)., and 2.a, (2014).

30. *See* Grosso, *Regulating For Sustainability: The Legality Of Carrying Capacity-Based Environmental And Land Use Permitting Decisions,* 35 NOVA L. REV. 711, 738-740 (Summer 2011).

31. *See* Grosso, *supra* note 32, at 742-745. (citing *City of Hollywood v. Hollywood, Inc.*, 432 So. 2d 1332 (Fla. 4th DCA 1983), *City of Boca Raton v. Boca Villas Corp., City of Boca Raton v. Boca Villas Corp*., 371 So. 2d 154, 155, 159 (Fla. 4th DCA 1979) (per curiam); and *Innkeepers Motor Lodge, Inc. v. City of New Smyrna Beach,* 460 So. 2d 379 (Fla. 5th DCA 1984).

communities in Florida to reduce and respond to climate and sea level rise impacts, and to provide examples that can be borrowed and adapted to other states.

D. Florida's Community Planning Act

Florida's *Community Planning Act* does not mention the phrase "climate change". Its requirements, however, when applied to the available science about the impact of land use decisions on climate and sea level, clearly require that local planning and development decisions reflect this reality. The legal authority and requirements for protecting people, buildings and infrastructure, and natural resources through land use planning described below will require in many cases decisions that deny increases in development intensity in vulnerable areas. In many other cases, the law will support or require a reduction in what can be built, and how, in undeveloped vulnerable areas, and in what can be redeveloped after existing buildings are demolished or substantially damaged.

E. Comprehensive Plans Must Be Based On Professionally Accepted Data and Analysis

Florida law requires that comprehensive plans be "based upon relevant and appropriate data" and "analysis".[32] Data must be taken from "professionally accepted" sources[33]. To be "based on" data means to "react to it in an appropriate way and to the extent necessary indicated by the data available on that particular subject at the time of adoption of the plan or plan amendment at issue.[34] Given the overwhelming bulk of the scientific data currently available related to sea level rise and climate change, any planning decisions that are not based upon such information will be legally deficient.

The law does however give local governments the discretion however, to choose, among different "professionally accepted" sources[35] of information about climate and sea level rise impacts, which source to use as the basis for its planning decisions.

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32. FLA. STAT. § 163.3177(1)(f) (2014).
33. FLA. STAT. § 163.3177(1)(f)(2) (2014).
34. FLA. STAT. § 163.3177(1)(f) (2014) (emphasis added).
35. FLA. STAT. § 163.3177(1)(f)(2) (2014) ("The application of a methodology utilized in data collection or whether a particular methodology is professionally accepted may be

Next, the Act authorizes local governments to base the underlying data and analysis, as well as the legally operative parts of a comprehensive plan on "at least" a 10-year planning period.[36] The best planning for sea level rise impacts, particularly as it relates to allowable land uses and infrastructure siting and maintenance, would take advantage of his authorization.

F. Future Land Use Element

The most important part of a Comprehensive Plan is the Future Land Use Element, which assigns the "distribution, location, and extent of" the land uses, and the "population densities and building and structure intensities" allowed on each parcel of land. Allowable land uses "shall be based upon surveys, studies, and data regarding … [t]he character of undeveloped land… [and] the availability of water supplies, public facilities, and services."[37] Future land use amendments must be based on data[38] regarding the area including "[t]he availability of water supplies"[39] and "analysis of the suitability of the plan amendment for its proposed use considering the character of the undeveloped land, soils, topography, natural resources, and historic resources on site."[40]

This legal mandate that the most basic decisions about what can be built where, how intensely, and how, be based on the character of the land (for example, its vulnerability to sea level rise and storm surge and its relationship to climate impacts) and the projected availability of infrastructure and services (considering, for example, sea level and storm surge data) is the primary mechanism by which land use planning decisions impact mitigation and adaptation.

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evaluated. However, the evaluation may not include whether one accepted methodology is better than another.").

36. FLA. STAT. §§ 163.3177(1)(f)(3), 163.3177(2); § 163.3177(5)(a) (2014).

37. FLA. STAT. § 163.3177(6)(a) (2014).

38. The future land use element must include a future land use map or map series, which must show the following natural resources, if applicable: (I) Existing and planned public potable waterwells, cones of influence, and wellhead protection areas (II) Beaches and shores, including estuarine systems; (III) Rivers, bays, lakes, floodplains, and harbors; (IV) Wetlands; (V) Minerals and soils; (VI) Coastal high hazard areas. FLA. STAT. § 163.3177 (6)(a)(10)(c) (2014).

39. FLA. STAT. § 163.3177 (6)(a)(2)(d) (2014).

40. FLA. STAT. § 163.3177 (6)(a)(8) (2014).

The Act also requires comprehensive plans to include "criteria to:

> C. Encourage preservation of recreational and commercial working waterfronts for water-dependent uses in coastal communities.***
> E. Coordinate future land uses with the topography and soil conditions, and the availability of facilities and services.
> F. Ensure the protection of natural and historic resources.
> G. Provide for the compatibility of adjacent land uses." §163.3177(6)(a)3, Fla. Stat.

Next, Section 163.3177(6)(g)5, Fla. Stat., requires that local governments "[u]se ecological planning principles and assumptions in the determination of the suitability of permitted development". Given the state of the science, it would be hard to comply with this requirement if planning decisions are not based upon climate change/sea level rise information.

This fundamental land use planning authority is the fundamental difference between the legal authority enjoyed by local governments, and that given to state and regional wetland agencies under Florida law. Local governments *alone* have the authority to determine, in the first instance, the most appropriate use of all lands, including wetlands, while state permitting laws are intended to ensure that all impacts to wetlands that do occur as a result of permitted development are adequately offset. Accordingly, local governments have broad authority to limit and even prohibit development within wetlands and are not preempted from doing so by state environmental permitting laws. There is strong precedent under Florida's planning laws, from the comprehensive plans for Monroe County and its municipalities, that the locations, standards, and even the overall amount of development allowed in land use plans not exceed the "carrying capacity" of a community's land and water resources (including ecosystems, such as coastal zones) and infrastructure (for example hurricane evacuation capabilities, potable and wastewater capacity, stormwater management) capabilities to accommodate such demands and impacts. This planning approach is likely to come into increasing use in places where there are real physical limits to the ability to accommodate development safely and

without unacceptable environmental impacts.[41] Florida law recognizes that "physical limitations on population growth" may prevent a municipality from accommodating in its comprehensive plan, a "proportional share of the total county population…."[42]

Denying requested changes to current rules that would intensify land uses in vulnerable areas is the necessary first step. Local governments should deny requests for intensification of land uses in vulnerable areas (such as floodplains and coastal hazard areas). There is generally no property right to an increase in allowable uses[43], and declining to amend a comprehensive plan or zoning code is generally very discretionary[44] and *relatively* easy politically.

In many cases, however, the necessary response to climate-sea level rise changes will require the most difficult of all governmental actions – down-zonings (or plannings). The extent of the down-zoning will increase the political difficulty, and the greatest reductions in allowable use will create the potential for "takings" challenges. Such changes should not be done arbitrarily, but enacted where the current zoning allowances are now known to be unsuitable based upon current science. Intensities that, as a practical matter, are not likely to be able to be made appropriate (from a safety, ecological or other relevant perspective) through building standards, should be re down-graded. The same is true for those which would make soft-protection, beach, coastal and floodplain habitat migration and protection ineffective or unlikely.

This approach will often require limiting uses in vulnerable areas to low-density, large lot, agricultural or passive recreational uses. Local and state governments, as well as federal permitting agencies, must direct development concentrations non-environmentally sensitive upland areas outside vulnerable areas. Local, regional and state agencies must discourage new development or post-disaster redevelopment in vulnerable areas to reduce future risk and economic losses from sea level rise and flooding. For new construction and infrastructure that is allowed in these areas, vulnerability reduction measures must

41. *See* Grosso, *supra* note 32, at 747–751 (citations omitted).
42. FLA. STAT. §163.3177 (1)(f)(3) (2014).
43. *See*, e.g. Brevard County v. Snyder, 627 So. 2d 469, 475 (Fla. 1993).
44. *See*, e.g. Martin County v. Yusem, 690 So. 2d 1288 (Fla. 1997).

be required such as additional hardening, higher floor elevations or incorporation of natural infrastructure for increased resilience.[45]

G. The Property Rights Implications of Limitations on Types of Use and Intensity

1. The Denial of "Up-Plannings" or Upzonings

The most easily defended planning-zoning approach to climate mitigation and adaptation is the denial by a city or county of any requested amendment to a comprehensive plan or zoning map that would increase the allowed uses, the density/ intensity of those uses, or the development standards on vulnerable land. In Florida, there is no property right to an "up-planning" or "up-zoning" unless the currently allowed uses fail to allow any economically viable use of the land.[46] A local government's first step towards resiliency is to decline to increase the challenge ahead and deny requests for density/ intensity or use increases in vulnerable areas or that would increase their community's contribution to climate change, for example, by replacing natural lands with concrete, or by creating energy-inefficient (for example, sprawl- type) land use patterns.

2. Reductions in Use and/or Density/ Intensity Allowances

The most fundamentally effective, yet most politically difficult and legally challenging, policy decision is to reduce allowable land uses and development densities/intensities in vulnerable areas. The public policy, and legal support, for such measures is the necessity to protect nearby landowners and citizens from the physical, safety, and ecological impacts of development unsuited for the character of the area. Because they are politically difficult to enact, they will likely be pursued only where clearly appropriate based on the ecological and physical vulnerability of specific areas. Where they are necessary however, less effective measures will likely be wholly inadequate to the task of making an area resilient, and they should be implemented to the full extent allowed by private property rights law.

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45. Southeast Florida Regional Climate Action Plan, *supra* at 33. (*available at* http://www.southeastfloridaclimatecompact.org//wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf) (Last visited Mar. 22, 2015).

46. Brevard County v. Snyder, 627 So. 2d 469, 475 (Fla. 1993).

In Florida, local governments may reduce allowable uses, densities and intensities as long as the reductions do not go so far as to preclude any economically viable use of the land.[47] There is generally no vested right to the continuation of existing zoning allowances.[48] In *Glisson v. Alachua County,* [49] comprehensive land uses plan amendments that reduced the allowable residential density from one unit per acre to one unit per five acres, were not held to be takings since the change was not arbitrary, and the remaining uses were economically viable. The validity of the amendments was strongly supported by the fact that they were adopted under Florida's growth management law.[50]

In a case of direct relevance to the impacts of climate change and sea level rise, *Lee County v Morales* [51] rejected a "takings" claim where the end result of the challenged down-zoning still allowed the owner an economically viable use. The Court upheld a down-zoning of a barrier island from a *commercial* designation to an *Agriculture/Rural Residential* designation. The purpose of the rezoning was to preserve archaeological and environmental resources, and guard against the threat of hurricanes and flooding. The new zoning category allowed agricultural uses and the construction of single family homes on 1 acre tracts, with allowance for a variance for properties of less than 1 acre.[52] It was important to the Court's analysis that the downzoning was not arbitrary but was instead based upon an expert study and legitimate environmental, public safety, and concerns related to protection of endangered species, severe erosion, and the constant state of change of the land due to storm damage.[53]

Florida's *Bert J. Harris, Jr. Private Property Rights Protection Act* [54] ("Harris" Act) is intended to grant landowners more rights than they have under the Constitution, entitling them to compensation for regulation that they can prove, based upon appraisals and other information, constitutes an "*inordinate* burden" on an existing use or a vested right.[55] This standard is not

47. Glisson v. Alachua County, 558 So. 2d 1030 (Fla. 1st DCA 1990), *rev. denied*, 570 So.2d 1304 (Fla. 1990); Lee County v Morales, 557 So. 2d 652, 655-656 (Fla. 2d DCA 1990) (rezoning not a taking unless no beneficial and reasonable uses remain).

48. Smith v. City of Clearwater, 383 So. 2d. 681, 688-89 (Fla. 2d DCA 1980); Friedland v. Hollywood, 130 So. 2d 306 (Fla. 4th DCA 1961).

49. Glisson v. Alachua County, 558 So. 2d 1030 (Fla. 1st DCA 1990), *rev. denied*, 570 So. 2d 1304 (Fla. 1990).

50. *Id.* at 1037-38.

51. Lee County v Morales, 557 So. 2d 652 (Fla. 2d DCA 1990).

52. *Id.* at 653-54.

53. *Id.* at 653-56.

54. FLA. STAT. § 70.001 (2014).

55. FLA. STAT. § 70.001(2) (2014), 70.001(3)(e), FLA. STAT. (2014).

well defined[56] and no appeals court has found a Harris Act violation, but they have rejected several.[57]

A *Harris Act* claim based on an allegation of infringement of vested rights was rejected in *City of Jacksonville v. Coffield,*[58] where the Court ruled that the Act does not grant landowners any greater "vested" rights than they have under existing judicial doctrine. Coffield had contracted to buy land to develop adjacent to a public road which would abut an existing development. Prior to the purchase, an application had been made to have the roadway closed and abandoned, and the petition remained unresolved when Coffield closed on the land. Subsequently, the road closure and abandonment was completed, effectively preventing the proposed development due to a lack of vehicular access. Coffield's *Harris Act* suit was rejected because his intent to subdivide was not an actual, present use or activity, as required to support a vested right, but instead a business decision to buy the land with knowledge of the potential road closure. Thus, he had no valid claim that the city had unlawfully interfered with an existing right or created an inordinate burden.[59]

In *Palm Beach Polo v. Village of Wellington,* 918 So. 2d 988, 990 (Fla. 4th DCA 2006), a *Harris Act* claim based upon the enforcement of a floodplain preservation and restoration plan was rejected because the plaintiff had purchased the land subject to the plan, which had been agreed – to by the prior owner as a condition of development approval for another property.[60] Thus, the new owner never possessed an "existing use" on which to base a claim.

Nothing in the *Harris Act* prevents a local government from maintaining or adopting land use policies and development standards as necessary to protect the community from the adverse

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56. Susan Trevarthen, Columns: City, County and local Government Law:" Advising the Client Regarding Protection of Property Rights: Harris Act and Inverse Condemnation Claims, 78 FLA. BAR J. 61, 62 (2004); Grosso and Hartsell, *Old McDonald Still Has a Farm: Agricultural Property Rights After the Veto of S.B. 1712*, FLA. BAR. J. Mar., 2005, Volume 79, No. 3; Ruppert, Grimm & Candiotti, Sea-Level Rise Adaptation and the Bert J. Harris, Jr., Private Property Rights Protection Act, https://www.flseagrant.org/wp-content/uploads/2012/03/Ruppert_BH-Act_article.pdf (The substantive standard of "inordinate burden" in the Act remains difficult to interpret as little reported case law addresses the term.").

57. M&H Profit, Inc. v. Panama City, 28 So. 3d 71 (Fla. 1st DCA 2009); Holmes v. Marion County, 960 So. 2d. 828 (Fla. 5th DCA 2007); Jacksonville v. Coffield, 18 So. 3d 589 (Fla. 1st DCA 2009).

58. City of Jacksonville v. Harold Coffield and Windsong Place, LLC., 18 So. 3d 589 (Fla. 1st DCA 2009).

59. *Id.* at 598. For an additional discussion of this case, see Ruppert, Grimm & Candiotti, Sea-Level Rise Adaptation and the Bert J. Harris, Jr., Private Property Rights Protection Act, https://www.flseagrant.org/wp-content/uploads/2012/03/Ruppert_BH-Act_article.pdf (at 18-21).

60. *Id.* at 995.

effects of sea level rise and storm surge. Significant commentary exists explaining the broad latitude the Act continues to allow local governments to react to ever - changing circumstances and amend their comprehensive plans, so long as the change does not "inordinately burden" a landowner.[61] A local government should not fail to protect its citizens because of vague, speculative or abstract fears about the *Harris Act*.

3. Non-Development or Extractive Uses

A key aspect of property rights law that can be under-utilized by government officials and staff concerned about the potential "takings" implications of regulatory and planning decisions is that development or intrusive uses (for example extraction) can be completely prohibited and the landowner still left with economically viable (or, in Florida non-inordinately burdensome) uses.

In *Beyer v. City of Marathon*, Florida's Third District Court of Appeals rejected a property rights claim, ruling that a strict land use plan (which prohibited any development but allowed camping), enacted 30 years after the plaintiff had purchased an uninhabited nine – acre island bird rookery in the Florida Keys, allowed a reasonable economic use of the property in the absence of any previously acquired vested right to any other, more profitable, use. The Beyers had no investment-backed expectations to development given their lack of any effort on their part to develop the land after they bought the land.[62]

H. Post-Disaster Rebuilding Policies: Non-Conforming Uses & Property Rights

When a local government land use plan or zoning code is revised, slightly or substantially, the new standard generally applies to future, not existing development, which is typically grandfathered, or vested, either legislatively or judicially, from having to meet the new standard. Existing construction and land uses are called "non-conforming uses", which typically are allowed

61. *See generally*, Susan Trevarthen, *Columns: City, County and local Government Law:" Advising the Client Regarding Protection of Property Rights: Harris Act and Inverse Condemnation Claims*, 78 FLA. BAR J. 61, 62 (2004); Grosso and Hartsell, *Old McDonald Still Has a Farm: Agricultural Property Rights After the Veto of S.B. 1712*, FLA. BAR. J. Mar., 2005, Volume 79, No. 3.

62. Beyer v. City of Marathon, 37 So. 3d 932 (Fla. 3d DCA 2013).

to remain in place.[63] A key question for resiliency planning is whether to require new or re-construction to comply with revised regulations (including significantly, new use or density/intensity restrictions) when a building is demolished or substantially damaged. The existence of uses that currently do not conform to newly-enacted standards designed to respond to climate/ sea – level rise mitigation and resiliency requirements should not generally be an obstacle to the enactment of those standards. They do not make existing structures illegal, but may be essential to ensuring the resiliency of the land upon which they are built and of the structures themselves.

The greater the delay in adopting such regulations, the less effective they will be, as more structures will have been built prior to their enactment. To the extent, however, that modern science and engineering are revealing the current inappropriateness of so many prior building locations, intensities and standards, responsible planning and development policy must require non-conforming uses to comply with modern sea level rise – appropriate standards after they are demolished or substantially damaged.[64]

A responsible and appropriate approach for local ordinances that change the extent, location or manner of construction and uses allowed in a given area is thus to vest non-conforming uses from having to comply with the new requirements unless and until they are abandoned or substantially destroyed. Local ordinances could then prohibit the complete re-building to the extent inconsistent with current standards. Where the zoning change was substantial enough relative to any specific landowner to raise a potentially valid property rights violation, [65] the code could authorize a variance procedure that, depending on the nature and purpose of the regulatory requirement, either authorizes a deviation from the standard to the extent necessary

63. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013). *Id*. at 86. (citation omitted).

64. This is often defined as having sustained 25%, or 50% or more damage. For example, when damage to a building exceeds 50% of a structure's pre-damage value, the National Flood Insurance Program conditions on rebuilding. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at page 88. (citation omitted).

65. For example, unless some alternative economically viable use is allowed, a complete prohibition on rebuilding, unless either necessary to prevent a nuisance under state common law, will be deemed a "taking". *See, e.g.*, Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992) (holding that the preclusion of all economically viable uses resulted in a takings violation.

to avoid a property rights, or provides another form of relief, such as acquisition of fee simple or an easement.[66]

Local governments can address climate change and sea level rise impacts in their land use – zoning or their post-disaster mitigation plans. Particular emphasis should be placed on limiting post-disaster rebuilding on repetitive loss properties.

I. Water –Dependency Land Use Requirements

The critical nature of the basic land use decision about vulnerable coastal (and other) areas, and the compelling nature of the competing demands for use in the coastal zone, suggests the adoption of a "water dependency" requirement, such as that found in federal wetlands permitting law[67], and in some states,[68] for land use and zoning designations in vulnerable areas.

J. Buffer, and Open Space and Setback Requirements

Adequate coastal setbacks are a particularly important strategy in terms of reacting to both the physical and ecological challenges created by seal level rise and storm surge. Agencies can require new development and redevelopment in vulnerable areas to maintain setbacks or buffers from delineated water level or habitat boundary lines, to allow for natural storage of flood waters, prevent exacerbating flooding impacts on adjacent properties, provide natural protection, and allow upland migration of beaches,

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66. The legal justifications for variances, and the threshold criteria for determination of a "taking", are closely related. An administrative provision authorizing variances from prohibitory regulations, to the extent necessary to allow some reasonable use of private property, can avoid inverse condemnation of individual parcels as part of a comprehensive regulatory approach. *See e.g.*, Askew v. Gables-by-the-Sea, Inc., 333 So. 2d. 56 (Fla. 1st DCA 1976).

67. Under the federal Clean Water Act, a Section 404 wetland permit will not be granted if a practicable alternative exists, and there is a rebuttable presumption that practicable alternatives are available for projects that are not water- dependent. A water-dependent project is one that "requires access or proximity to or siting within the special aquatic site [which includes wetlands,] in question to fulfill its basic purpose." 40 C.F.R. §§ 230.5, 230.10(a)(3).

68. New Jersey's state policy for adapting to sea-level rise shares similarities with various policies including the Wetlands act of 1970, prohibiting development in tidal wetlands unless the development is water dependent and no prudent alternative exists. Coastal Sensitivity at 206-207. New Jersey's state plan gives local government the final say on development, however a statewide vision of growth management is provided. *Id.* at 207. The state discourages development in land that contains valuable ecosystems, including coastal wetlands. Effectively allowing opportunities for wetlands to migrate inland as the sea level rises. *Id.*

wetlands and other habitats. Setbacks help reduce repetitive economic loss, make coastal structures safer, allow for landward habitat migration, and avoid the need for coastal armoring and the associated damage to beaches, which is particularly important in states like Florida that depend on beach tourism.[69] Local coastal building restrictions are not preempted by the statute requiring a permit from the Florida Department of Environmental Protection for construction, such as a dune rehabilitation project, within the state – defined coastal construction zone.[70]

Setbacks, open space and similar requirements do not generally "take" the subject portion of the private property of which they are a part. Courts determine whether a taking has occurred by viewing the end result of the regulation on the property "as a whole," and not some distinct segment thereof.[71]

1. Real Estate Sale Disclosures

Florida law requires a seller of land partially or totally seaward of the coastal construction control line (CCCL) to provide a written notice to the buyer with the following statement:

> "The property being purchased may be subject to coastal erosion and to federal, state, or local regulations that govern coastal property, including the delineation of the coastal construction control line, rigid coastal protection structures, beach nourishment, and the protection of marine turtles. Additional information can be obtained from the Florida Department of Environmental Protection, including whether there are significant erosion conditions associated with the shoreline of the property being purchased."[72]

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69. Columbia Center for Climate Change Law Columbia Law School (October 2013), at page 44 (citations omitted).

70. GLA & Asocs. v. City of Boca Raton, 855 So. 2d 278 (Fla. 4th DCA 2003).

71. DEP v. Schindler, 604 So. 2d 565, 568 (Fla. 2d DCA 1992).

72. "Unless otherwise waived in writing by the purchaser, at or prior to the closing of any transaction where an interest in real property located either partially or totally seaward of the coastal construction control line as defined in s. 161.053 is being transferred, the seller shall provide to the purchaser an affidavit, or a survey meeting the requirements of chapter 472, delineating the location of the coastal construction control line on the property being transferred." FLA. STAT. § 161.57(3) (2014). However, "A seller's failure to deliver the disclosure, affidavit, or survey required by this section does not impair the enforceability of the sale and purchase contract by either party, create any right of rescission by the purchaser, or impair the title to any such real property conveyed by the seller to the purchaser." FLA. STAT. § 161.57 (4) (2014).

Property sellers must also provide an affidavit or property survey with an aerial view of the property showing where the CCCL lies, unless the buyer waives this requirement. The statute, however, precludes the buyer from rescinding or challenging the enforceability of the contract if the seller fails to comply with this requirement.[73] An analysis of compliance with this Act has found it to be largely ineffective in creating awareness on the part of prospective buyers about hazards and coastal permitting requirements impacting the property.[74]

K. Protecting Current & Future Wetlands Through Comprehensive Planning

City and county comprehensive plans must include a Conservation Element to address several issues of direct relevance to climate and sea level rise mitigation and adaptation. First, the element must identify rivers, bays, lakes, wetlands, estuarine marshes, ground waters, and springs, floodplains, areas known to have experienced soil erosion, and recreationally and commercially important fish or shellfish, wildlife, and marine habitats, and vegetative communities.[75]

Local plans must include a Conservation Element that identifies rivers, bays, lakes, wetlands, estuarine marshes, ground waters, and springs, floodplains, areas with known soil erosion problems, and recreationally and commercially important fish or shellfish, wildlife, and marine habitats, and vegetative communities.[76] They must protect air quality, the quality and quantity of current and projected water sources, including natural groundwater recharge areas, wellhead protection areas, and surface waters, and waters that flow into estuaries or the ocean, provide for the emergency conservation of water sources, protect minerals, soils, and native vegetative communities from destruction, protect fisheries, wildlife, wildlife habitat, and marine habitat and restrict activities known to adversely affect the survival of endangered and threatened wildlife, coordinate with adjacent local governments to protect unique vegetative communities located within more than one local jurisdiction, designate environmentally sensitive lands for protection, protect

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73. *Id.*

74. *Florida's Coastal Hazards Disclosure Law: Property Owner Perceptions of the Physical and Regulatory Environment,* University of Florida, Levin College of Law (July 2012). *Id* at vi.

75. FLA. STAT. § 163.3177 (6)(d)(1) (2014).

76. FLA. STAT § 163.3177 (6)(d)1 (2014); FLA. STAT. § 163.3177 (6)(d)(1) (2014).

and conserve wetlands, and directs future land uses that are incompatible with the protection and conservation of wetlands and wetland functions away from wetlands.[77] "The type, intensity or density, extent, distribution, and location of allowable land uses and the types, values, functions, sizes, conditions, and locations of wetlands are… factors that shall be considered when directing incompatible land uses away from wetlands. Land uses shall be distributed in a manner that minimizes the effect and impact on wetlands."[78]

These requirements clearly correlate strongly with climate and sea level rise impacts, and are powerful mandates to make land use decisions that are completely consistent with the current and future realities of climate change and sea level rise. Policies meeting these requirements, based upon community-specific data and analysis concerning climate and sea level rise impacts, would tend to allow only that development which, by its nature, has to be located along the coast or other vulnerable areas, which is inherently suitable to the location given projected land and water elevations and infrastructure availability, and which poses no threat to adjacent uses.

1. Urban Sprawl & Rural Lands

It would be a mistake to respond to the limitations on development along the coast and other flood-prone areas by recklessly developing higher and dryer interior lands. The need to preserve biodiversity and habitat migration,[79] the water and carbon storage functions and other economic and social values of natural areas and open space, and the food-producing functions of farmland, and of protecting the public from the costly extension of infrastructure and services and the inefficient use of land and energy is even greater in the face of climate change and sea level

77. FLA. STAT § 163.3177(6)(d)2 (2014); FLA. STAT. § 163.3177 (6)(d)(2) (2014).

78. FLA. STAT § 163.3177(6)(d)2 (2014); FLA. STAT. § 163.3177 (6)(d)(2)(k) (2014).

79. "States are also beginning to anticipate the need to accommodate wildlife in human adaptation. In June 2008, the Western Governors' Association established the Western Wildlife Habitat Council. Among other duties, the Council is tasked to "[c]oordinate and implement steps that foster establishment of a 'Decisional Support System' (DSS) with each state," including "[p]rioritization of the process for identifying wildlife corridors and crucial habitats, and taking steps accordingly to support adaptation to climate change." The Council is also working "to establish policies that ensure information from state-led Decisional Support Systems is considered early in planning and decision-making processes, whether federal, tribal, state or local, in order to preserve these sensitive landscapes through avoidance, minimization, and mitigation." Robin Kundis Craig, *Stationarity is Dead – Long Live Transformation: Five Principles for Climate Change Adaptation*, 34 HARV. ENVTL. L. REV. 9, 56 (2010). (citations omitted).

rise. Florida must respect the finite "carrying capacity" of its land and water resources.[80]

Florida law requires local governments to maintain policies discouraging urban sprawl and the attendant conversion of natural lands to pavement (which increases greenhouse gas emissions), and increase in vehicular miles travelled. The analysis required for determining whether plan amendments discourage urban sprawl involves several factors that can significantly impact a community's mitigation of climate change impacts, including whether the plan amendment:

> I. Promotes, allows, or designates … substantial areas of the jurisdiction to develop as low-intensity, low-density, or single-use development or uses.
> II. Promotes, allows, or designates significant amounts of urban development to occur in rural areas at substantial distances from existing urban areas while not using undeveloped lands that are available and suitable for development….
> ***
> IV. Fails to adequately protect and conserve natural resources, such as wetlands, floodplains, native vegetation, environmentally sensitive areas, natural groundwater aquifer recharge areas, lakes, rivers, shorelines, beaches, bays, estuarine systems, and other significant natural systems.
> V. Fails to adequately protect adjacent agricultural areas and activities … and dormant, unique, and prime farmlands and soils.
> VI. Fails to maximize use of existing public facilities and services.
> ***
> VIII. Allows for land use patterns or timing which disproportionately increase the cost in time, money, and energy of providing and maintaining facilities and services, including roads, potable water, sanitary sewer, stormwater management, law enforcement, education, health care, fire and emergency response, and general government….
> ***

80. *See* above for a discussion of carrying capacity- based development limits.

> X. Discourages or inhibits infill development or the redevelopment of existing neighborhoods and communities.
> XI. Fails to encourage a functional mix of uses.
> ***
> XIII. Results in the loss of significant amounts of functional open space."[81]

The law also creates an incentive for developments that are allowed in undeveloped, including agricultural, areas, to incorporate climate- friendly development standards, including:

> 1. No adverse impacts on natural resources and ecosystems;
> 2. Efficient and cost-effective provision of public infrastructure and services;
> 3. Walkable and connected communities, and compact development and a mix of uses at densities and intensities that support a range of housing choices and a multimodal transportation system, including pedestrian, bicycle, and transit;
> 4. Conservation of water and energy[82];
> 5. Preservation of agriculture and unique, and prime farmlands and soils;
> 6. Preservation of open space and natural lands;
> 7. A balance of residential and nonresidential land uses;
> 8. Innovative development patterns such as transit-oriented developments or new towns.[83]

L. Coastal Management

There are 35 statutorily - designated coastal counties that include 169 municipalities, and each is required to develop and

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81. FLA. STAT. § 163.3177 (6)(a)(9) (2014).

82. "Up to three-quarters of the energy used to produce electricity is lost as escaped heat at the point of generation, in transmission to the point of use, or because of energy-inefficient home sizes and building construction. Our single-family homes use disproportionate amounts of energy and waste much of it." John R. Nolon, *Regulatory Takings And Property Rights Confront Sea Level Rise: How Do They Roll?*, 21 WIDENER L. J. 735, 739 (2012). (citing ABB INC., ENERGY EFFICIENCY IN THE POWER GRID 2–3 (2007) and Reid Ewing & Fang Rong, *The Impact of Urban Form on U.S. Energy Use*, 19 HOUSING POL'Y DEBATE 1, 20 (2008) (finding that households living in single-family units use 54 percent more energy from space heating and 26 percent more energy for space cooling than households living in multi-family units).

83. FLA. STAT. § 163.3164(51) (2014) & § 163.3177 (6)(a)(9) (2014).

adopt a Coastal Element as part of its comprehensive plan.[84] The law requires strong policies governing coastal development and infrastructure decisions. Plans that exacerbate Florida's contributions to climate change or reduce its resiliency violate state law.

The law "recognizes there is significant interest in the resources of the coastal zone of the state. Further, the Legislature recognizes that, in the event of a natural disaster, the state may provide financial assistance to local governments for the reconstruction of roads, sewer systems, and other public facilities. Local government comprehensive plans must restrict development activities that would damage or destroy coastal resources, and that such plans protect human life and limit public expenditures in areas that are subject to destruction by natural disaster."[85]

Comprehensive plans for coastal communities must:

> 1. Maintain, restore, and enhance the overall quality of the coastal zone environment, including, but not limited to, its amenities and aesthetic values.
> 2. Preserve the continued existence of viable populations of all species of wildlife and marine life.
> 3. Protect the orderly and balanced utilization and preservation, consistent with sound conservation principles, of all living and nonliving coastal zone resources.
> 4. Avoid irreversible and irretrievable loss of coastal zone resources.
> 5. Use ecological planning principles and assumptions in the determination of the suitability of permitted development.
> 6. Limit public expenditures that subsidize development in coastal high-hazard areas.
> 7. Protect human life against the effects of natural disasters.[86]

Plans must map "areas subject to coastal flooding… and other areas of special concern" and analyze "the environmental, socioeconomic, and fiscal impact of development and redevelopment proposed … with required infrastructure to support this development or redevelopment, on the natural … resources

84. *See* FLA. STAT. § 163.3177(6)(g) (2014), § 163.3178 (2)(d), § 373.4211; § 380.24.
85. FLA. STAT. § 163.3178 (1) (2014). (emphasis added).
86. FLA. STAT. § 163.3177 (6)(g) (2014).

of the coast and the plans and principles to be used to control development and redevelopment to eliminate or mitigate the adverse impacts on coastal wetlands; living marine resources; barrier islands, including beach and dune systems; unique wildlife habitat; historical and archaeological sites; and other fragile coastal resources."[87]

Next, plans must include provisions that govern development, and which:

> D. [o]utlines principles for hazard mitigation and protection of human life against the effects of natural disaster, including population evacuation[88], which take into consideration the capability to safely evacuate the density of coastal population proposed in the future land use plan element in the event of an impending natural disaster.
> E. … protect[s] existing beach and dune systems from human-induced erosion and … restor[es] altered beach and dune systems.
> F. [included a] redevelopment component which outlines the principles which shall be used to eliminate inappropriate and unsafe development in the coastal areas when opportunities arise.
> G. … identifies public access to beach and shoreline areas and addresses the need for water-dependent and water-related facilities, including marinas, along shoreline areas. Such component must … preserve recreational and commercial working waterfronts ….
> H. Designat[es] coastal high-hazard areas and the criteria for mitigation for a comprehensive plan amendment in a coastal high-hazard area ….
> ***
> J. … mitigate[s] the threat to human life and to control proposed development and redevelopment in order to protect the coastal environment and give consideration to cumulative impacts."[89]

87. FLA. STAT. § 163.3178 (2)(a)-(b) (2014).

88. The Act requires that land use amendments maintain or lower evacuation times, with one authorized method being a requirement that developers contribute money or land sufficient to meet the hurricane shelter and transportation needs reasonably attributable to the development. FLA. STAT. § 163.3178 (8) (2014).

89. FLA. STAT. § 163.3178(2) (2014).

The Act also requires each county to identify and prioritize coastal properties for acquisition by the state, based on criteria "which, in addition to recognizing pristine coastal properties and coastal properties of significant or important environmental sensitivity, recognize hazard mitigation, beach access, beach management…, and other policies necessary for effective coastal management."[90]

1. Hurricane Evacuation and Public Safety

The hurricane evacuation/public safety requirements may be particularly important as a matter of public policy and relative to the legal defensibility of cautious limits on coastal development. Local governments are required to designate Coastal High Hazard Areas[91] (CHHA)[92]. Comprehensive plans must provide a mitigation plan that requires developers to contribute resources to hurricane shelters and evacuation capabilities if their projects would result in higher population concentrations within the CHHA.[93] Land use amendments must maintain or lower established evacuation times, with one authorized method being a requirement that developers contribute money or land sufficient to meet the hurricane shelter and transportation needs reasonably attributable to the development.[94]

Compliance with these requirements, in conjunction with those for use of the best available professionally accepted data and analysis, require that comprehensive plan amendments

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90. FLA. STAT. § 163.3178(7) (2014). *See also* FLA. STAT. § 380.21(4) (2014). (Recognizing the "great potential" of land acquisition to support the state's coastal zone management efforts.")

91. The statute defines the CHHA as "the area below the elevation of the category 1 storm surge line as established by the Sea, Lake, and Overland Surges from Hurricanes (SLOSH) computerized storm surge model." FLA. STAT. § 163.3178(2)(h), (2014).

92. FLA. STAT. §163.3178(2)(h) (2014).

93. FLA. STAT. § 163.3178(8)(a)(3) (2014).

94. FLA. STAT. § 163.3178(8) (2014), stating that a "proposed comprehensive plan amendment shall be … in compliance with state coastal high-hazard provisions if: [1] The adopted level of service for out-of-county hurricane evacuation is maintained for a category 5 storm event as measured on the Saffir-Simpson scale; or [2] A 12-hour evacuation time to shelter is maintained for a category 5 storm event … and shelter space reasonably expected to accommodate the residents of the development contemplated by…[the] amendment is available; or [3]Appropriate mitigation is provided that will satisfy subparagraph 1. or subparagraph 2. Appropriate mitigation shall include, without limitation, payment of money, contribution of land, and construction of hurricane shelters and transportation facilities.

(b) For those local governments that have not established a level of service for out-of-county hurricane evacuation by July 1, 2008, …the level of service shall be no greater than 16 hours for a category 5 storm event as measured on the Saffir-Simpson scale.".

impacting residential density allowances in coastal zones be based upon the existing and increasing science projecting an increase in the frequency and intensity of storm – surges and hurricanes.[95]

M. Adaptation Action Areas

1. Priority Planning Area Overlay Zones Generally

Because the most effective regulatory decisions, and those most capable of passing political and judicial scrutiny, are place – specific, local ordinances should be avoid a "one size fits all" approach and establish standards for land use and development that are tailored to specific areas defined by their level of contribution or vulnerability to climate and sea level rise impacts. Overlay Zones – an additional zoning designation applied over an existing land use or zoning district to add additional, typically stricter, standards for development) can avoid the problem of establishing general standards that are too strict in some areas and too weak in others. The boundaries of the overlay should be based upon a vulnerability assessment, using the best available data, to determine the geographic areas that should be subject to specific climate mitigation and resiliency land use and building standards, such as those areas that are susceptible to flooding and rising sea levels, and those that will be important for landward terrestrial and aquatic habitat migration. Florida's statutory authorization for the designation of local "Adaptation Action Areas"[96] is one example of a sea level rise adaptation tool available to local governments.

Florida law makes optional the designation by each coastal local government of an "adaptation action area"[97] for "low-lying

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95. *See,* e.g., *National Water Program Strategy: Response to Climate Change* (US EPA Dec. 2012) at 73 (¶1); Jessica A. Bacher and Jeffrey P. LeJava, *Shifting Sands and Burden Shifting: Local Land Use Responses to Sea Level Rise in Light of Regulatory Takings Concerns* (Zoning & Planning Report Aug. 2012) at 2(¶¶3-4); *See also* CCSP COASTAL SENSITIVITY, at 21; *See also Sea Temperature Rise,*NAT'L GEOGRAPHIC SOC'Y, http:// ocean.nationalgeographic.com/ocean/critical-issues-sea-temperature-rise/ (last visited Apr. 1, 2012); *See also* IPCC SYNTHESIS REPORT, *supra* note 3, at 46; *See also* Thomas R. Knutson, *Global Warming and Hurricanes,* NAT'L OCEANOGRAPHIC & ATMOSPHERIC ADMIN. (Aug. 26, 2011), *available at* http://www.gfdl.noaa.gov/global-warming-and-hurricanes (emphasis omitted), (¶1); *See also* Nolon, *Regulatory Takings And Property Rights Confront Sea Level Rise: How Do They Roll?* 21 WIDENER L. J. 735, 742–43 (2012).

96. FLA. STAT. § 161. 3164(1) (2014).

97. FLA. STAT. § 163.3177(6)(g)(10), an adaptation action area is "a designation in the coastal management element of a local government's comprehensive plan which identifies 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." FLA. STAT. §

coastal zones that are experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea level."[98] The Act authorizes policies "to improve resilience to coastal flooding resulting from high-tide events, storm surge, flash floods, stormwater runoff, and related impacts of sea-level rise."[99] This statutory authorization for "optional" adaptation action area planning does not excuse non-compliance with the many mandatory requirements, described above, that preclude comprehensive plan amendments that are adverse to sea level rise and climate resiliency.

Because of site-specific variability of expected impacts throughout that part of any local jurisdiction that is subject to flooding and sea-level rise, local governments might wisely choose to adopt different strategies, for example, shoreline protection, managed relocation, or accommodation, for different zones within a designated AAA.[100]

A number of resources are available to local governments interested in implementing an AAA planning process. Florida's Land Planning Agency is engaged in providing technical support and guidance to local governments interested in implementing this provision.[101] The City of Fort Lauderdale is currently engaged in a pilot project that could be a model for other cities in Florida.[102]

163.3164(1) (2014). An adaptation action area may be designated "for those low-lying coastal zones that are experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of rising sea level. Local governments that adopt an adaptation action area may consider policies within the coastal management element to improve resilience to coastal flooding resulting from high-tide events, storm surge, flash floods, storm water runoff, and related impacts of sea-level rise. Criteria for the adaptation action area may include, but need not be limited to, areas for which the land elevations are below, at, or near mean higher high water, which have a hydrologic connection to coastal waters, or which are designated as evacuation zones for storm surge." FLA. STAT. § 163.3177(6)(g)(10) (2014).

98. FLA. STAT. § 163.3177(6)(g)(10) (2014).

99. *Id.*

100. Krystal Macadangdang and Melissa Newmons, *Sea Level Rise Ready: Model Comprehensive Plan Goals, and Policies, to Address Sea level Rise Impacts in Florida*, at 6., *available at* https://www.flseagrant.org/wpcontent/uploads/2012/03/sea_level_rise_Cons. Clinic_2010_v.2.pdf. (This document includes several potentially useful recommendations for specific comprehensive plan goals and policies.).

101. Adaptation Planning (Adapting to Sea Level Change), *available at* http://www.floridajobs.org/community-planning-and-development/programs/technical-assistance/community-resiliency/adaptation-planning.

102. Innovative Pilot Projects, *available at* http://www.fortlauderdale.gov/departments-/public-works-/sustainability-division/climate-resiliency/innovative-pilot-projects.

N. Capital Improvements Element

Comprehensive plans must identify projects necessary to ensure that any adopted-level-of-service is achieved and maintained for the five-year period, include estimates of public facility costs, and identify each project as funded or unfunded and given a level of priority. The capital improvements program must reflect levels of service that can be "reasonably met" and must identify infrastructure needed to maintain that level of service standard. [103] The Act requires that local government comprehensive plans identify problems and needs relating to sanitary sewer, solid waste, drainage, potable water and natural groundwater recharge, as well as ways to provide this infrastructure and these services in the future. It also requires existing deficiencies to be corrected, infrastructure and service capacity to be extended or increased to meet future needs, conserve groundwater and natural drainage functions. [104] The task of identifying the infrastructure needed to maintain level of service standards may increasingly require an understanding of how sea level rise will impact the provision of services such as storm water management, water treatment and supply, roads, and other facilities. Plan amendments that impact these issues, will need to analyze how and when future infrastructure services may be susceptible to future climate change impacts, and the adoption of policies designed to adequately respond to the deficiency.

Local governments are also authorized to require builders to pay their "proportionate share" of any transportation improvements required to serve their developments. [105] Local governments may choose to avoid providing any subsidy to construct or rebuild roads in vulnerable areas, and require full funding from builders for roads required to serve development in such locations.

1. Conservation Element

Comprehensive Plans must include a Conservation Element for the "conservation, use, and protection of natural resources ... including factors that affect energy conservation.[106] This element must analyze and address development approvals relative to several issues of direct relevance to climate and sea level rise

103. FLA. STAT. § 163.3177(3)(a) (2014).
104. FLA. STAT. § 163.3177(6)(c) 2 (2014).
105. FLA. STAT. § 163.3180(5)(h) (2014).
106. FLA. STAT. § 163.3177(6)(d) (2014).

mitigation and adaptation. The element must identify rivers, bays, lakes, wetlands, estuarine marshes, groundwaters, and springs, floodplains, areas known to have experienced soil erosion problems, and recreationally and commercially important fish or shellfish, wildlife, and marine habitats, and vegetative communities.[107] The element must adopt development standards which:

> A. Protect air quality,[108] the quality and quantity of current and projected water sources, including natural groundwater recharge areas, wellhead protection areas, and surface waters, and waters that flow into estuaries or the ocean.
> ***
> C. Provides for the emergency conservation of water sources in accordance with the plans of the regional water management district.
> D. Protect minerals, soils, and native vegetative communities from destruction.
> E. Protect fisheries, wildlife, wildlife habitat, and marine habitat and restrict activities known to adversely affect the survival of endangered and threatened wildlife.
> ***
> G. Coordinates with adjacent local governments to protect unique vegetative communities located within more than one local jurisdiction.
> H. Designates environmentally sensitive lands for protection.
> I. Manages hazardous waste to protect natural resources.
> J. Protects and conserves wetlands and the natural functions of wetlands.
> K. Directs future land uses that are incompatible with the protection and conservation of wetlands and wetland functions away from wetlands.[109]

Florida law supports the most effective, fundamentally important governmental response to the challenges of climate change and sea level rise – ensuring that where we build and live

107. FLA. STAT. § 163.3177(6)(d)(1) (2014).

108. *Id.* The mandate to protect air quality surely supports stringent restrictions on greenhouse gas emitting land uses, such as suburban sprawl.

109. FLA. STAT. § 163.3177(6)(d)(2) (2014).

affirmatively reduces our contribution to climate change and promotes or adaptability to sea level rise. The next section of this article will briefly explore the use of environmental permitting laws to decrease climate change impact and increase sea level rise resiliency.[110]

III. FLORIDA ENVIRONMENTAL PERMITTING LAWS

The state's environmental permitting decisions play a major role in climate and sea level rise resiliency. The next Section discusses the role of selected Florida permitting laws in reducing and responding to climate and sea level rise impacts.

A. Beach Renourishment & Coastal Permitting Laws

"Two key parts of Florida's response to storms and erosion have become placing sand on the beaches and armoring."[111] Both should be used only rarely in the future.

1. Shoreline Armoring

The significant construction and expense of seawalls,[112] coupled with the potential liabilities resulting from their erosional and flooding impacts on other lands, are substantial economic disadvantages. Their negative ecological impacts, including the

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110. For additional discussion of state-mandated or authorized local government planning requirements and approaches, see Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at pages 27–40, and 96–97; *Titus*, Rolling Easements, (EPA 2011), at 46; Grannis, *Adaptation Tool Kit: Sea Level Rise and Coastal Land* Use, Georgetown Climate Center (Oct. 2011), at 18-24. (*available at* http://www.georgetownclimate.org/files/Adaptation_Tool_Kit_SLR.pdf).

111. *See generally* Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65 (2008).

112. Seawalls can cost $10-20 million per mile to construct, and $1.5 million per mile every 20–25 miles to maintain. Power Point Presentation, Robert E. Deyle, Dept of Urban and Regional Planning, FSU (Presented at Fla. Sea Grant Apr. 19 2013); Deyle_Adaptive_Response_Planning_to_Sea_Level_Rise_FlaSeaGrantWkshop_08-09-12_edited. *See also* Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at page 65 (reporting that shore armoring can cost from $500 to $7,600 per linear foot to construct, and has substantial maintenance, replacement and construction time costs). Jessica Grannis, *Adaptation Tool Kit: Sea Level Rise and Coastal Land* Use, Georgetown Climate Center (Oct. 2011), at 6 *available at* http://www.georgetownclimate.org/files/Adaptation_Tool_Kit_SLR.pdf (armoring is expensive, adversely impacts the environmental, neighboring properties, and encourages development in vulnerable areas, while non-structural solutions over the long term perform better in each of these areas).

preclusion of beach habitat and of beach and wetland migration,[113] also suggest that their use should probably be limited to special cases, where "critical"[114] and unmovable community assets are at risk.

"Florida has a long history of confronting shoreline migration where permanent structures have been built near the beach. Early confrontations led to armoring, often resulting in loss of the beach, its ecosystem and the human values associated with the beach."[115] Armoring beaches exacerbates erosion.[116] Jetties and inlet dredging "exacerbate erosion by depriving beaches on the downdrift side of sand that they would have received absent the jetty and dredging."[117] As explained by Ruppert:

> Armoring exacerbates erosion for two reasons. First, armoring locks up sand behind it, keeping sand from the dunes from sloughing down and becoming part of the active movement of sand on the beach. Since the system cannot get sand from behind the armoring, the system needs to take more sand from someplace else. Second, during a significant erosion event, much sand that is carried offshore is eventually redeposited on the beach through natural processes, but armoring can interfere with this process and prevent sand from naturally accumulating again on the beach.[118]

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113. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at page 63–67. *See also*, Power Point Presentation, Robert E. Deyle, Dept of Urban and Regional Planning, FSU (Presented at Fla. Sea Grant Apr. 19 2013) Deyle_Adaptive_Response_Planning_to_Sea_Level_Rise_FlaSeaGrantWkshop_08-09-12_edited.

114. *See* Grannis, *Zoning for Sea Level Rise*, *supra* note 18, at 3.

115. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 70 (2008); After Hurricane Dennis, beachfront landowners in Florida's Panhandle, convinced their local governments to allow the construction of 26 miles of seawalls to protect their properties from further damage. This is a traditional problem in Florida. Grannis, *Adaptation Tool Kit: Sea Level Rise and Coastal Land* Use, Georgetown Climate Center (Oct. 2011), at 5–6.

116. For example, it has been reported that scientists in Hawaii have determined that "the reliance upon shoreline armoring to mitigate coastal erosion on Oahu has, instead, produced widespread beach erosion resulting in beach narrowing and loss." Armoring resulted in the loss of over 9 kilometers of sandy beach, 8% of the original 72 miles of sandy beach on Oahu, with 95% of that loss occurring in areas with coastal armoring. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at 49.

117. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, at 67 (2008).

118. *Id.* at 70 (fn. 44).

Ruppert's analysis of Florida coastal permitting files in the mid – 2000's revealed that the state's coastal permitting agency:

> Acknowledges that armoring contributes to erosion on adjacent, non-armored property. In fact, in many instances, part of the justification for armoring on one property is the erosive effect of neighboring armoring. In some more recent permits, the [state coastal permitting agency has] taken a new approach: assume no adverse impacts to neighboring property from armoring-induced erosion if the return walls for the armoring are five feet or more from the adjacent property.[119]

Ruppert also explains that:

> Three causes of beach migration have been identified: inlets, wave action/storms, and [sea level rise].
> The available responses to beach migration usually … include no action, protection (through armoring and nourishment), and relocation away from the shoreline. The no-action alternative has very seldom been used in Florida as it results in human development falling into the sea – a lose/lose situation both for the property owner and the beach-dune system that is then littered with the remains. Protection through armoring has been successful in protecting human structures in many instances, but continued shoreline migration up to the armoring leads to loss of the beach, its ecosystem functions, and human benefits such as tourism. Foreseeable loss of the beach due to armoring also may represent a failure of the State of Florida to fulfill its duty to protect the public's interest in the beach via the public trust doctrine. Furthermore, loss of beaches would have severe economic consequences for Florida because of reduced tourism. Relocation of development away from the shoreline would avoid loss of the beach and protect species and ecosystems

119. *Id.* at 70.

> dependent on the beach, but this strategy has only rarely been used…."[120]

State and local governments should maintain or adopt permitting programs that prohibit or strongly discourage hard shoreline armoring, and require soft-armoring techniques [121] where feasible to lessen the environmental impacts of hard shoreline armoring.[122] Among other states, Maine, Massachusetts and Rhode Island have statutes restricting shoreline armoring for the purpose of allowing shoreline natural resources to migrate.[123] Strong local land use restrictions on development in rural land and important natural geological and ecological resources can allow wetlands to migrate inland as sea level rises.[124] Beyond these examples:

> South Carolina enacted a statute that prohibits the construction of erosion control structures seaward of a setback line. The State's Office of Ocean and Coastal Resource Management has acknowledged that "[i]t must be accepted that regardless of attempts to forestall the process, the Atlantic Ocean, as a result of sea level rise and periodic storms, is ultimately going to force those who have built too near the beachfront to retreat." South Carolina's legislature has declared that the dynamic beach/dune system along its coast is "extremely important" because it "generates approximately two-thirds of [the state's] annual tourism industry revenue" and functions as "a storm barrier," a "habitat for numerous species," and a "natural healthy environment for the citizens" of the state. Recognizing that "development ... has been [unwisely] sited too close to the system," the legislature deemed it in "both the public and private interests to protect the system from this unwise development." Because armoring provides a "false

120. *Id.* at 71.

121. Soft armoring "can imitate natural systems, interact with the local ecosystem, and adapt to changes in the environment." Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at 63.

122. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at 63–65.

123. CCSP, Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region 320 (2009). pp. *Id.* at 207.

124. *Id.*

> sense of security," South Carolina chose to "severely restrict the use of hard erosion control devices to armor the beach/dune system and to encourage the replacement of hard erosion control devices with soft technologies." The state prohibits most erosion control structures seaward of a setback line based on the crest of the dune system.
> Since 2000, Maryland… has encouraged policies for responding to a [sea level] rise of two to three feet in this century." In 2007, the governor established the Commission on Climate Change, which released a Climate Action Plan in 2008. The plan provides an "Adaptation and Response Toolbox" designed to "[g]ive state and local governments the right tools to anticipate and plan for sea-level rise and climate change." Additionally, the state's Living Shorelines program presents management options that "allow for natural coastal processes to remain through the strategic placement of plants, stone, sand fill, and other structural and organic materials."[125]

On the federal level, among the changes that the U.S. Army Corps of Engineers might choose to consider is the repeal of its current administrative rule allowance for a Nationwide Permit for bulkheads and other erosion control structures,[126] which allows the construction of structures that can preclude the necessary landward migration of wetlands that follows sea level rise.[127] Conversely, no Nationwide Permit (which does not require an individual permit application but instead the simple filing of a notice that a landowner is undertaking construction as authorized by the General Permit) is available for the installation of "soft" shoreline protection measures, which do require an individual permit application under the Clean Water Act.[128]

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125. John R. Nolon, *Regulatory Takings and Property Rights Confront Sea Level Rise: How do They Roll?* 21 Widener L.J. 735, 766–67 (2012).

126. *See* 61 Federal Register 65.873, 65.915 (Dec. 13, 1996). See 61 Federal Register 65, 873, 65–915 (Dec. 13, 1996) (reissuing Nationwide Wetland Permit 13, Bank Stabilization activities necessary for erosion prevention). *See also*, Reissuance of Nationwide Permits, 72 Federal Register 11.1108-09, 11183 (Mar. 12, 2007) (reissuing Nationwide Permit 13 and explaining that construction of erosion control structures along coastal shores is authorized). *See also* Nationwide Permits 3 (Maintenance), 31 (Maintenance of Existing Flood Control Facilities), and 45 (Repair of Uplands Damaged by Discrete Events). 72 Federal Register 11092-11198 (Mar. 12, 2007).

127. CCSP, Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region 167 (2009).

128. *Id.* at 169.

B. Florida Coastal Construction Permitting

1. The Coastal Construction Control Line (CCCL) Permitting Program

Florida law recognizes that coastal areas play an important role in protecting the ecology and public health, safety, and welfare, and that the coastal areas form the first line of defense for the mainland against storms and hurricanes:

> [t]he beaches in this state and the coastal barrier dunes adjacent to such beaches, by their nature, are subject to frequent and severe fluctuations and represent one of the most valuable natural resources of Florida and that it is in the public interest to preserve and protect them from imprudent construction which can jeopardize the stability of the beach-dune system, accelerate erosion, provide inadequate protection to upland structures, endanger adjacent properties, or interfere with public beach access.[129]

To that end, Florida has established a Coastal Construction Control Line (CCCL) on a county-by-county basis along its sandy beaches[130] that marks the extent of "the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves, or other predictable weather conditions."[131] The CCCL is recorded in each county's public records.[132]

Many and perhaps most of the CCCLs previously established for Florida's coastal counties are very outdated, and have not been updated to reflect currently available information about the future status of the beach.[133] Re-calculations of the line by the state are

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129. FLA. STAT. § 161.053(1)(a) (2014).

130. *Id.*

131. FLA. STAT. § 161.053(1)(a) (2014). The statute also authorizes the department to "establish a segment or segments of a coastal construction control line further landward than the impact zone of a 100-year storm surge, provided such segment or segments do not extend beyond the landward toe of the coastal barrier dune structure that intercepts the 100-year storm surge. Such segment or segments shall not be established if adequate dune protection is provided by a state-approved dune management plan." *Id.*

132. FLA. STAT. § 161.053(2)(a) (2014).

133. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, at 83 (2008).

discretionary and not mandatory.[134] Florida has not incorporated sea level rise into the CCCL program.[135]

The law does not prohibit construction seaward of the CCCL, but requires that any construction seaward of the CCCL be permitted by the state under the Act's siting and design standards. [136] A permit is required prior to any coastal construction [137] upon sovereign lands below (seaward of) the mean high-water line. [138] The focus of the permitting review is on "major habitable structures"[139] and coastal armoring structures as these "have the greatest direct effect on beach management options in the face of shoreline migration."[140] Local governments may establish their own coastal zoning and building codes.[141]

2. Criteria for Issuing Permit

On their face, the standards for permit issuance appear to support permitting decisions that preclude construction that would exacerbate sea level rise, erosion, and related impacts along Florida's coast. Permits decision must consider " the potential effects of the location of such structures or activities, including potential cumulative effects … upon such beach-dune system or coastal inlet, which …clearly justify such permit". [142] Applicants must show that impacts have been "minimized" and that the construction will not result in a "significant adverse impact". [143]

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134. FLA. STAT. § 161.053(2)(a) (2014); *See also* Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65 (2008).

135. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y. J. 65 (2008).

136. "Special siting and design considerations shall be necessary seaward of established coastal construction control lines to ensure the protection of the beach-dune system, proposed or existing structures, and adjacent properties and the preservation of public beach access." FLA. STAT. § 161.053 (1)(a) (2014).

137. "Coastal construction" includes "any work or activity which is likely to have a material physical effect on existing coastal conditions or natural shore and inlet processes." FLA. STAT. § 161.021(6) (2014). This definition is construed broadly. For example, in *Town of Palm Beach v. Dept. of Nat. Resources*, 577 So. 2d 1383 (Fla. 4th DCA 1991), the court ruled that "coastal construction" included trimming and maintenance of native salt resistant vegetation, and thus required a permit.

138. FLA. STAT. § 161.041(1) (2014).

139. These include structures such as houses, condominiums, multi-family dwellings, restaurants, and hotels. FLA. ADMIN. CODE r. 62B-33.002(60)(c)2.

140. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65 (2008).

141. FLA. STAT. § 161.053(3) (2014); In GLA & Associates, Inc. v. City of Boca Raton, 855 So.2d 278, 282-283 (Fla. 4th DCA 2003), the Court upheld a stricter local ordinance that was not approved by the state.

142. FLA. STAT. §§ 161.041(b)(2) &(a)(3); FLA. STAT. § 161.053(4)(a)(3) (2014).

143. FLA. ADMIN. CODE ANN. r. 62B-33.005(2).

This requires a showing that the permit is "clearly justified by demonstrating that all … requirements … are met, including:

> A. The construction will not result in removal or destruction of native vegetation which will either destabilize a frontal, primary, or significant dune or cause a significant adverse impact to the beach and dune system due to increased erosion by wind or water;
> B. The construction will not result in removal or disturbance of in situ sandy soils of the beach and dune system to such a degree that a significant adverse impact to the beach and dune system would result from either reducing the existing ability of the system to resist erosion during a storm or lowering existing levels of storm protection to upland properties and structures;
> C. The construction will not direct discharges of water or other fluids in a seaward direction and in a manner that would result in significant adverse impacts. […] construction shall be designed so as to minimize erosion induced surface water runoff within the beach and dune system and to prevent additional seaward or off-site discharges associated with a coastal storm event.
> D. The construction will not result in the net excavation of the in situ sandy soils seaward of the control line or 50-foot setback;
> E. The construction will not cause an increase in structure-induced scour of such magnitude during a storm that the structure-induced scour would result in a significant adverse impact;
> F. The construction will minimize the po-tential for wind and waterborne missiles during a storm;
> G. The activity will not interfere with public access… and
> H. The construction will not cause a sig-nificant adverse impact to marine turtles, or the coastal system."[144]

The state is required to ensure that any biological or environmental monitoring conditions included in a permit

144. FLA. ADMIN. CODE r. 62B-33.005(4) (a-h) (2014).

regarding beach activities are based on clearly defined scientific principles.[145]

The protection of sea turtles is an explicit consideration. The state is required to comply with the Marine Turtle Protection Act when considering applications for coastal permits.[146] Absent an emergency, construction may not be allowed during the marine turtle-nesting season if such construction will result in a significant adverse impact.[147] The DEP must recommend permit denial if the proposed project would result in an unauthorized "take" under the federal Endangered Species Act.[148] Also, the state may condition the timing, nature, and sequence of construction to protect sea turtles and native salt-resistant vegetation and endangered plant communities.[149] In *Leto v. Florida Department of Environmental Protection,*[150] construction permits were denied because, among other reasons, "the structure, as designed, failed to adequately protect local marine turtles."[151] Ruppert has criticized the lack of an express limitation on the *location* of structures in order to protect sea turtles, as well as what he characterizes as a priority for protecting man-made structures, as opposed to the natural functions beaches.[152]

In *Surfrider Foundation, Inc. v. Town of Palm Beach*, [153] the state denied [154] a coastal permit for a proposed beach renourishment project based on several findings of adverse environmental impact to the nearshore coastal resources. [155] The Department of Environmental Protection's Final Order of denial explained that the Legislature's declaration that beach restoration and nourishment projects are in the public

145. FLA. STAT. § 161.041(4) (2014).

146. FLA. STAT. § 379.2431(1)(f) (2014).

147. FLA. ADMIN. CODE r. 62B-33.0051(3) (2014).

148. FLA. STAT. §§ 379.2431 (1)(d) & (h) (2014).

149. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 75 (2008). *See also* FLA. STAT. § 379.2431(1)(g) (2014). If the applicant is applying for a permit for beach restoration, and has an active marine turtle relocation program, however, DEP may not restrict the timing of the project. *Id.*

150. Leto v. Florida Department of Environmental Protection, 824 So. 2d 283 (Fla. 4th DCA 2002).

151. *Id.* at 284.

152. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 84–88 (2008).

153. Surfrider Foundation, Inc. v. Town of Palm Beach, 2009 WL 2507236 (Fla. Dept. Env. Prot. 2009).

154. *See id.* at *28. The agency had initially approved the permit but the approval was challenged by environmental organizations that prevailed in a formal administrative hearing. *See id.* at *1–2.

155. *Id.* at *2–7, *28, 61, 64–127.

interest[156] does not exempt such projects from the regulatory laws[157], and such projects are to be denied coastal permitting approval if they fail to meet the statutory *public interest* and *cumulative impact* standards.[158]

3. Thirty-Year Erosion Projection Line

The CCCL is not a line of prohibition, but Florida has also established a 30-year Erosion Projection Line (EPL), which prohibits the construction of "non-shore-protection structures" in the area projected to be "seaward of the seasonal high-water line within 30 years."[159] The prohibition does not apply to shore protection structures, piers, other minor structures, intake/ discharge structures, or, notably, qualifying single-family homes.[160] Such homes are exempt if (1) the parcel was platted or subdivided prior to 1985; (2) the owner does not own another parcel adjacent to or landward of the parcel; (3) the house will be landward of the frontal dune; and (4) the structure will be as far landward as practicable.[161] This exemption may be a significant limitation on the meaningful impact of the law.

The 30-year erosion is a site – specific line projection of where the mean high water line will be in thirty years.[162] It is based upon historical measurements of shoreline change, and does not account for likely future movements of the beach due to sea level rise, thus sometimes resulting in the placement of the line at the current water line.[163] The state must specifically consider existing beach nourishment projects or those projects for which funding has been secured and permits have issued.[164] The 30-year line is always seaward of the CCCL.[165]

The 30 year time period has been criticized as too short, relative to the useful life of many structures and too much infrastructure, for its failure to protect dynamic dune systems

156. FLA. STAT, § 161.088 (2008).
157. *Id.* at *16.
158. *Id.* at *15–19.
159. FLA. STAT. § 161.053(5)(b) (2014).
160. FLA. STAT. § 161.053(5)(b)-(c) (2014).
161. FLA. STAT. § 161.053(5)(c) (2014). Ruppert suggests that this exception "likely owes its existence to the U.S. Supreme Court case of *Lucas v. South Carolina Coastal Council*, 117 505 U.S. 1003 (1992)." Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J 65, at 82 (2008).
162. FLA. STAT. § 161.053(5) (b) (2014).
163. Ruppert, *supra* note 161, at 75. *See* FLA. ADMIN. CODE r. 62B-33.024 (1) and (2).
164. FLA. STAT. § 161.053(5)(d) (2014).
165. FLA. STAT. § 161.053(5)(b) (2014).

relative to the seasonal high water line (SHWL), for its exclusive basis in "historical" erosion rates (to the exclusion of future projected erosion rates resulting from sea level rise or recent coastal construction and armoring) and for its ambiguity on whether episodic storm erosion will be considered in establishing the line.[166] One of the state's closest observers of its coastal policies, has recommended that:

> The rules for the 30-yr. EPL should be modified to account for a much longer time frame such as 50-100 years and take into account the crucial importance of protecting the dune structure by siting structures behind the line of the projected location of a dune structure, location, if present, or a safe landward location instead of the seasonal high water line. The shoreline change rates should also account for sea level rise and should contain a "severe storm safety measure" on top of the average shoreline change rates to account for the inevitable hurricanes and tropical storms.

4. Rebuilding, Repairing and Relocating Existing Structures

The statute allows the issuance of a permit for repair or rebuilding of a major structure seaward of the thirty-year erosion protection line *within* the confines of an existing foundation.[167] Repair or rebuilding that expands the capacity of the structure beyond the thirty-year erosion protection line is strictly prohibited.[168] When reviewing an application to rebuild or relocate, the state must specifically consider changes in shoreline conditions, the availability of other locations for the structure, and design adequacy.[169] Alternatively, the state *may* issue a permit for a more landward relocation or rebuilding of a damaged or existing structure if the relocation or rebuilding would not cause further harm to the beach-dune system.[170]

166. Ruppert, *supra* note 161, at 75. *See* FLA. ADMIN. CODE r. 62B-33.024 (1) and (2).
167. FLA. STAT. § 161.053(12)(a) (2014).
168. FLA. STAT. § 161.053(12)(b). (2014).
169. FLA. STAT. § 161.053(12). (2014).
170. FLA. STAT. § 161.053(12)(a)(4) (2014).

5. Reasonably and Uniform Continuous Line of Construction

The Act allows for the construction of single-family habitable structures that do not advance "a reasonably continuous and uniform construction line":

> If in the immediate contiguous or adjacent area a number of existing structures have established a reasonably continuous and uniform construction line closer to the line of mean high water …, and if said existing structures have not been unduly affected by erosion, a proposed structure may be permitted along such line on written authorization from the department if such proposed structure complies with the Florida Building Code and the rules of the department"[171]

The DEP's implementing administrative rule states that, absent exceptional circumstances, applicants are entitled to a permit up to the line of construction:

> If in the immediate area a number of existing major structures have established a reasonably continuous and uniform construction line and if the existing structures have not been unduly affected by erosion, except [where the 30-year erosion projection applies], the Department shall issue a permit for the construction of a similar structure up to that line.[172]

The interpretive leeway available to the state in determining the location of such a line has been criticized because it "may effectively be advancing the line of construction seawards and more immediately into the path of harm and beach migration."[173] This allowance:

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171. FLA. STAT. § 161.052(2)(b) (2014). The ambiguity of this provision has been criticized as allowing the state too much discretion to decide that existing homes which form the existing line of construction have not been affected by erosion to the extent that the construction of another home along the same line should be prohibited. Ruppert, SEA GRANT L. & POL'Y J, *supra* note 162 at 78–79.

172. FLA. ADMIN. CODE r. 62B-33.005(9) (2014). For a discussion of this provision, see Ruppert, SEA GRANT L. & POL'Y J., *supra* note 162, 78 (2008) (explaining that DEP has interpreted the "line of construction" provision to mean that, "absent exceptional circumstances, applicants are entitled to a permit up to the line of construction".).

173. Ruppert, SEA GRANT L. & POL'Y J., *supra* note 162 at 88.

> [p]romotes increased investment and proportionally greater difficulty in adjusting to future movements of the beach-dune system. Building to the line of construction may be the difference in changing an area from one where policies of moving back from the migrating shoreline would be adopted to one where the beach will be entirely lost along with its habitat, ecosystem, and all the recreational, esthetic, and spiritual benefits it provides us.

Application of the line of construction provision should be eliminated or … limited to the most densely developed areas, which are already likely to be protected in the short-term. However, even in such instances, development should be conditioned on recordation of deed restrictions limiting rebuilding of the property and requiring removal of any structures that interfere with the dynamic beach[174] In addition, if the provision is not eliminated, the most seaward buildings on a developed beach nourished by state funds should be assumed to be unduly affected by erosion since a developed beach typically must be "critically eroding" to receive state funds."[175]

6. Construction Landward of Existing Armoring

Construction landward of existing coastal armoring and seaward of the CCCL is exempt if it meets certain siting and design criteria. [176] This exemption has been criticized as inappropriate in light of sea level rise:

> The current exception to criteria for construction of major habitable structures landward of existing armoring makes no sense since it promotes development behind a structure that will not be capable of continuing to offer the level of protection required by the exception. In addition, the increase in investment in coastal development makes it increasingly difficult to relocate development to preserve a dynamic beach.[177]

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174. *Id.*
175. *Id.* at 89.
176. FLA. STAT. § 161.053(2) (b)(1) (2014).
177. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 77 (2008).

7. Rebuilding of Damaged Structures

The statute exempts "any modification, maintenance, or repair of any existing structure within the limits of the existing foundation which does not require, involve, or include any additions to, or repair or modification of, the existing foundation of that structure." [178] Ruppert recommends that the law be changed to that rebuilding is:

> Rebuilding should be limited to 50% of the value of the structure and …limited to the original foundation and type of structure unless being relocated landward. The state should identify a zone (based on erosion rates and/or proximity to the mean high water line or the landward toe of dune, when present) seaward of which rebuilding would simply be prohibited or allowed only once with a permit condition that the property must have a recorded deed restriction to this effect. If this policy is not implemented, a similar policy would be for the state and local governments to begin a project whereby they purchase the rebuild rights from properties.[179]

C. Final Word on Coasta Development

Structures built to the standards required by this law, as opposed to those built prior to its enactment or under an exemption or grandfathering provision, fare significantly better in a storm.[180] This strongly suggests that Florida should repeal or limit the statutory permit exemptions.

Florida should strengthen the criteria for issuance of such permits, and adopt a policy of reducing the amount and coastal development in vulnerable areas. This approach would require

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178. FLA. STAT. § 161.053(11)(a) (2014). Specifically excluded from this exemption are seawalls or other rigid coastal or shore protection structures and any additions or enclosures added, constructed, or installed below the first dwelling floor or lowest deck of the existing structure. *Id.*

179. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J. 65, 84 (2008).

180. Columbia Center for Climate Change Law Columbia Law School (Oct. 2013), at page 47 (reporting that the 1995 Hurricane Opal destroyed 56% of the impacted structures that had not been built under the Act's standards, but destroyed only .2% of the impacted structures that had been built pursuant to its requirements.).

placing the long – term fate of the state over the short-term desires of coastal landowners:

> Coastal property in Florida carries tremendous value. High property values and the wealth of many coastal property owners often translate into political connections for those interested in building along Florida's coast. Such political clout can translate into the ability of some to get permits. During research, numerous individuals familiar with the CCCL program asserted that enough political pressure can result in the issuance of almost any permit… The lack of clarity in how factors are weighed in making permit decisions may contribute significantly to the vulnerability of the permitting process to political influence. CCCL statutes and rules should be modified to clarify the standards and criteria and how they interact in making a determination of "no significant adverse impact." Modifications could include development of a matrix of different factors to consider for each permit. Each factor would be weighted and rated according to defined formulas with a minimum overall score necessary for issuance. There is also the possibility of setting a lowest possible score on one or more factors.[181]

D. Coastal Armoring

1. Introduction/Policy

The emphasis of Florida's law is on the protection of private structures and public infrastructure from damage or destruction caused by coastal erosion "[u]ntil such time as the state takes measures to reduce erosion on a regional basis."[182] To this end, the state is authorized to issue permits for construction of permanent or temporary rigid coastal armoring structures to protect private structures or public infrastructure that are "vulnerable to damage from frequent coastal storms".[183] The criteria otherwise applicable to coastal permits, govern these permits.[184]

181. Ruppert, SEA GRANT LAW& POL'Y J., *supra* note 162 at 88.
182. FLA. STAT. § 161.085(1) (2014).
183. FLA. STAT. § 161.085 (2)(a) (2014).
184. FLA. STAT. § 161.085(2) (2014).

2. Eligible Structures

"Armoring is allowed for private structures or public infrastructure that is "vulnerable to damage from frequent coastal storms." [185] Permits can be issued for immediate (present) installation, or made "contingent upon the occurrence of specified changes to the coastal system which would leave upland structures vulnerable to damage from frequent coastal storms."[186]

3. Permitting Criteria

"Armoring shall be sited and designed to minimize adverse impacts to the beach and dune system, marine turtles, native salt-tolerant vegetation, and existing upland and adjacent structures and to minimize interference with public beach access." [187] Construction can "not result in a significant adverse impact."[188] Armoring may not result in a complete loss of public beach access without providing alternative public beach access.[189]

4. Armoring Discouraged

Florida law *encourages* alternatives to armoring, such as foundation modification, structure relocation, or dune restoration.[190] Even where the permit requirements for coastal armoring have been met, a permit will not be issued if beach renourishment, beach restoration, sand transfer, or other project which would provide protection for the eligible structure has been permitted, funded, and scheduled to begin within nine

185. FLA. STAT. § 161.085 (2)(a) (2014).
186. FLA. STAT. §§ 161.085(2) (a-b) (2014).
187. FLA. ADMIN. CODE r. 62B-33.0051(2) (2014).
188. FLA. ADMIN. CODE r. 62B-33.0051(1)(a)(5) (2014).
189. FLA. ADMIN. CODE r. 62B-33.0051(1)(a)(4) (2014).
190. FLA. ADMIN. CODE r. 62B-33.0051(1) (2014). The Southeast Florida Regional Climate Action Plan recommends that local governments adopt a policy to "[c]oordinate 'living shorelines' objectives at regional scale to foster use of natural infrastructure (e.g. coral reefs, native vegetation and mangrove wetlands) instead of or in addition to grey infrastructure (e.g. bulkheads)." Southeast Florida Regional Climate Action Plan, supra note 17, at 33. (*available at* http://www.southeastfloridaclimatecompact.org//wp-content/uploads/2014/09/regional-climate-action-plan-final-ada-compliant.pdf) (Last visited Mar. 22, 2015).

months.[191] Also, Florida's wetland permitting law discourages, and in some cases, prohibits, seawalls in estuaries and lagoons.[192]

It has been recommended that coastal development "permits for new or rebuilt major habitable structures … be conditioned on recording a deed restriction that the property will never be armored and that the structure will be removed at the property owner's expense if the structure ends up interfering with the active beach. This also puts the applicant on notice that future movement of the beach is at the risk of the property owner rather than the public or the species and ecosystem that depend on the beach. Without this fundamental limitation, [the state] would further guarantee the loss of our beaches to armoring every time it issued a permit for a major habitable structure. The prohibition on armoring for structures built pursuant to the program recognizes that such structures are built to not lock up the sand underneath them and interfere as little as possible with the beach-dune system."[193]

5. Permits for Gaps in Existing Armoring

Permits for present installations of coastal armoring may be issued where such installation is between and adjoins at both ends rigid coastal armoring structures, follows a continuous and uniform armoring line with existing coastal armoring structures, and is no more than 250 feet in length.[194] The new armoring must be installed no farther seaward than the existing armoring, avoid

191. FLA. ADMIN. CODE r. 62B-33.0051(1)(b) (2014).

192. FLA. STAT. § 373.414(5)(a) (2014) establishes legislative intent to "protect estuaries and lagoons from the damage created by construction of vertical seawalls and to encourage construction of environmentally desirable shore protection systems, such as riprap and gently sloping shorelines which are planted with suitable aquatic and wetland vegetation." To that end, the statute prohibits the issuance of permits for vertical seawalls except within ports, within marinas if needed to provide access to watercraft or serve public facilities, in existing manmade canals with existing vertical seawalls, and as needed for public utilities to provide service to the public. FLA. STAT. § 373.414 (5)(b) (2014). The statute generally requires allowable repairs of existing seawalls to be faced with, or replaced entirely with riprap. FLA. STAT. § 373.414 (5)(c) (2014).

193. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162 at 90. Also, under Kaua'i County, Hawaii's *Shoreline Setback and Coastal Protection Ordinance,* a structure that is, pursuant to a variance, built seaward of the setback line is ineligible for protection by shoreline hardening for the life of the structure. *Managed Coastal Retreat: A Handbook of Tools, Case Studies, and Lessons Learned*, Columbia Center for Climate Change Law, Columbia Law School (Oct. 2013), at pages 47-48 (citations omitted). "These provisions are meant to protect the island's beaches against the detrimental effects of coastal armoring and to prevent property owners from relying on coastal hardening to protect their developments." *Managed Coastal Retreat: A Handbook of Tools, Case Studies, and Lessons Learned*, Columbia Center for Climate Change Law, Columbia Law School (Oct. 2013), at page 48.

194. FLA. STAT. § 161.085(2)(c) (2014).

adverse impacts to turtles, and not exceed the highest level of protection provided by the existing walls.[195] This allowance has been criticized for allowing "gap" beaches that are the site of a "disproportionately large share of sea turtle nesting sites in heavily armored areas" to be seawalled, and for promoting new investment and construction landward of seawalls in vulnerable areas.[196]

6. Siting and Design Criteria

Armoring must generally be sited as far landward as practicable to minimize adverse impacts while still protecting the vulnerable structure.[197] If the armoring would interfere with public access to the beach, the applicant must provide alternate public access.[198] Armoring must be designed to provide reasonable protection to eligible structures, minimize adverse impacts (which includes impacts to sea turtles), and meet generally accepted engineering practice.[199]

7. Emergency Temporary Armoring

Permits for "emergency" coastal armoring may be issued if the state or a local government with jurisdiction declares a shoreline emergency. If a coastal storm causes erosion of the beach and dune system such that existing structures have either become damaged or vulnerable to damage from a future frequent coastal storm, the local or state government may take emergency protection measures to protect public infrastructure and private structures. Alternatively, upon declaring a shoreline emergency and providing notification to affected property owners and to the Department, the governmental entity may issue permits authorizing private property owners within the jurisdiction to protect their private structures.[200]

In an emergency, local governments are authorized to install or issue permits for emergency coastal armoring. If they do not, an applicant must obtain a permit from the state.[201] Protection of the beach-dune system, impacts on adjacent properties, preservation

195. FLA. ADMIN. CODE r. 62B-33.0051(1)(a) (2014).
196. SEA GRANT LAW& POL'Y J., Vol. 1, No. 1 (June, 2008).
197. FLA. ADMIN. CODE r. 62B-33.0051(2)(a) (2014).
198. FLA. ADMIN. CODE r. 62B-33.0051(2) (a) 5 (2014).
199. FLA. ADMIN. CODE r. 62B- 33.0051(2) (b) (2014).
200 FLA. STAT. §161.085(2)(3) (2014).
201 *Id.* § 161.085(3).

of public beach access, and protection of coastal vegetation, threatened or endangered species, and nesting marine turtles and their hatchlings must be "considered and incorporated" into emergency permits.[202]

Armoring constructed pursuant to the Act's "emergency" provisions "shall be temporary". Within sixty days after the emergency installation of the structure, the property owner shall remove the structure or submit a permit application to the DEP for a permanent rigid coastal armoring structure.[203] It has been observed, however, that temporary armoring, as well as unpermitted armoring required to seek an after-the-fact permit, tends to become permanent.[204]

8. Beach "Nourishment"

> The substantial damage to the Florida coastline precipitated by hurricanes and other storm events led the state to invest heavily in beach renourishment under the state law that gives it that authority. Florida has 1260 miles of coastland, comprising 825 miles of sand shoreline. Of those 825 miles, 485 are eroded and 388 are listed as "critically eroded," signifying that they are in need of restoration under the law.[205]
>
> Property owners often feel that any failure of state or local government to provide them with some sort of protection from migrating shores is unfair. Thus, beach nourishment has emerged as Florida's default policy for beach management because it offers protection to property, wildlife habitat, and the recreational value of beaches.[206]

Florida's Beach and Shore Preservation Act (BSPA) declares beach erosion "a serious menace to the economy and general welfare of the people and has advanced to emergency proportions."[207] The Legislature has found that "erosion of the beaches . . . is detrimental to tourism . . . further exposes the

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202 *Id.*
203 *Id.* § 161.085(6).
204 Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162 at 91.
205. Nolon, *supra* note 12 at 743-44 (citations omitted).
206. *Id.*
207. FLA. STAT. § 161.088 (2014).

state's highly developed coastline to severe storm damage, and threatens beach-related jobs, which, if not stopped, may significantly reduce state sales tax revenues."[208] The Act declares "a necessary governmental responsibility to properly manage and protect Florida beaches fronting on the Atlantic Ocean, Gulf of Mexico, and Straits of Florida from erosion, including erosion caused by improvement, modification, or alteration of inlets."[209]

The Act authorizes beach "restoration and nourishment projects" pursuant to a funded beach management plan.[210] It defines beach and shore preservation to include "erosion control[,] . . . hurricane protection[,] . . . coastal flood control, shoreline and offshore rehabilitation, and regulation of work and activities likely to affect the physical condition of the beach or shore."[211] Beach restoration is "the placement of sand on an eroded beach for the purposes of restoring it."[212] Beach nourishment is "the maintenance of a restored beach by the replacement of sand."[213] A beach restoration and nourishment project must be (1) in a critically eroded shoreline, (2) consistent with the state's beach management plan, and (3) designed to reduce upland damage from altered inlets, coastal armoring, or existing development.[214]

The Florida Department of Environmental Protection (DEP) is responsible for identifying those beaches that are critically eroded, and for authorizing funding of up to 75% of actual costs for renourishment projects.[215] The Act requires DEP to develop a multi-year repair and maintenance strategy for erosion control, beach preservation, beach restoration, beach nourishment and storm and hurricane protection, which encourages regional approaches to ensure the geographic coordination and sequencing of prioritized projects, reduces equipment mobilization and demobilization costs; maximizes the infusion of beach-quality sand into the system; extends the life of beach nourishment projects and reduces the frequency of nourishment; and promotes inlet sand bypassing to replicate the natural flow of sand interrupted by improved, modified, or altered inlets and ports.[216]

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208. *Id.* § 161.091(3).
209. *Id.* § 161.088.
210. *Id.*
211. *Id.* § 161.021(2).
212. *Id.* § 161.021(4).
213. *Id.* § 161.021(3).
214. *Id.* § 161.088; *see also* Nolon, *supra* note 12, at 745-746 (citations omitted).
215. FLA. STAT. § 161.101 (2014).
216. *Id.* § 161.091(1)-(2) (a)–(e).

The Act establishes a Beach Management Trust Fund to fund beach nourishment plans.[217] The criteria for prioritizing funding requests includes a project's long-term financial plan, its ability to enhance areas near sea turtle habitats, and the extent to which local/ regional sponsors agree to coordinate projects to save costs. Priority is given to funding the development, implementation, and administration of the state's beach management plan.[218]

As described by Ruppert in 2008, this program has developed:

> [A] long-range management plan for Florida's beaches. The plan implements active management strategies such as beach and dune restoration and nourishment, feeder beaches, inlet sand bypassing, and other actions to mitigate effects of erosion. Currently about half of Florida's 391.5 miles of critically eroded beaches are under active management. An increasingly significant portion of the strategic beach management plan focuses on the sand supply for beach nourishment. The plan also includes monitoring programs to evaluate management projects.[219]

9. The Problems With Beach Restoration and Renourishment

Explaining the historical broad support but emerging concerns being raised about beach renourishment in Florida, Ruppert writes:

> With a total of 140 beach nourishment projects, Florida has conducted the largest number of beach nourishment projects of all Gulf and Atlantic states in the United States. Nourishment has become the dominant beach policy management of Florida since the 1980s. Since then, nourishment has enjoyed substantial support from a broad array of interests. Recently, the wall of almost unanimous support for beach nourishment has begun to show cracks. Property owners whose property is being

217. *Id.* § 161.091.

218. *Id.* § 161.091(3).

219. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162 at 71. (explaining that the long-range management plan is in various documents divided up by regions of the state) (author's note: Those documents are now available at http://www.dep.state.fl.us/beaches/publications/ (Last visited Mar. 22, 2015).

> protected by beach nourishment have complained that nourishment violates their property rights, and environmental interests have increasingly voiced concern about the environmental impacts of beach nourishment.
>
> Concerns exist for impacts to sea turtles directly as well as to marine ecosystems generally. Nourishment has also been undermined by recent coastal storms in Florida. The 2004 and 2005 hurricanes both removed large amounts of nourished beach and gave rise to a flurry of nourishment activity. While some nourished beaches fared reasonably well, others were rapidly lost, leading to questions about the financial feasibility of such an approach. Financial issues with nourishment will only multiply as the energy costs for nourishment increase.
>
> Federal, state, and local governments contribute to nourishment as well as private parties in some cases. The federal government is estimated to have contributed about $680 million to nourishment in Florida through 2002, not including emergency funding after hurricanes for dune construction and not including the large amount of nourishment and federal funding provoked by the active hurricane seasons of 2004 and 2005. "Through the fiscal year 2006, over $582 million has been appropriated by the [Florida] Legislature for beach erosion control activities and hurricane recovery." Local governments also spend considerable funds for beach nourishment, and even private parties spend substantial funds trying to keep sand on the beach. Even assuming available energy and funding for nourishment, Florida is running short of sand. South Florida has run out of readily available sources of beach-quality sand, giving rise to talk of going as far as the Bahamas in search of sand.[220]

220. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162, at 73; *see also* FLA. STAT. § 161.144 (2014), which declares that the Florida Legislature recognizes that the sand resources are an "exhaustible resource."

Beach renourishment has significant drawbacks, including cost,[221] longterm availability, and adverse environmental impacts, among others.[222] Beach nourishment also results in significant destruction of nearshore ecological resources, such as corals and sea grass beds.[223]

Under Florida law, the same agency that identifies critically eroded beaches in need of taxpayer-funded restoration, under a law intended to protect their economic values, is also charged with regulating this activity, under a law designed to protect the ecology of coastal natural resources. It has been observed that agency practice has allowed non-compliant permit applications for homes within the Coastal Construction Control Line to remain pending long enough for a beach renourishment project to be completed, which then were eligible for permits based upon the existence of the renourished beach.[224] This dichotomy between the economic and political influences in support of beach renourishment project and the resulting adverse physical and ecological impacts leaves the state without a coherent policy on the subject. As one commentator has observed: As one commentator has observed:

> The objectives pursued by beach renourishment projects in Florida are to repair the damaging effects of sea level rise and storm surges and to halt the progress of inundation. With nearly 60 percent of the state's sandy shoreline suffering erosion, one wonders how economically sustainable this objective is. If 'thoughtful precaution' suggests that coastal states plan, on average, for a one-meter rise in sea level by the end of the century, one wonders how environmentally sustainable such an objective is.[225]

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221. Renourishemnt can cost $4.3 million per mile and require repetition every two to six years. Deyle_Adaptive_Response_Planning_to_Sea_Level_Rise_FlaSeaGrantWkshop_08-09-12_edited (on file with author).

222. *See* Coastal Sensitivity at p. 149, 183.

223. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note, at 72.

224. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162, at 87.

225. Nolon, *supra* note 12, at 752 (citations omitted). Professor Nolon explains that "[o]ther states have adopted a different posture, attempting to manage a qualified retreat as inundation, erosion, and avulsion occur. Some state statutes permit the acquisition of public access easements through eminent domain, voluntary sales, or donations of conservation easements. Others prohibit building bulkheads, seawalls, residences, or commercial buildings in vulnerable areas or require that structures be removed as the high tide line moves landward. Common law principles can be interpreted to create public easements to access a portion of littoral property as the sea level rises and erosion and avulsion occur. These techniques, in the aggregate, have been termed "rolling easements."

In at least one case, DEP's issuance of a coastal permit authorizing a renourishment project to the town of Palm Beach, was successfully challenged, and the permit ultimately denied.[226]

10. Final Analysis: Florida's Coastal Management Program

Writing in 2008, Ruppert characterized Florida's overall approach in this way:

> Unfortunately, Florida's regulatory system for coastal construction continues to allow rapid development in coastal areas. Private and public investment in infrastructure, new development in undeveloped areas, and increases in the density of existing development all continue to erode the reasonable management options for future responses to beach migration and [sea level rise]. For example, current and near-future development patterns and approvals often determine whether beaches that might have been allowed to migrate naturally at a lesser cost will instead need to be protected at far greater cost.

Florida's statewide process for permitting construction near beaches should be modified to serve as an immediate first line of defense in maintaining an array of options for responding to [sea level rise] and concomitant shoreline migration.

Despite increasing recognition of its problems and limitations, beach nourishment remains Florida's reaction to coastal migration. Many factors gathering on the horizon may come together to limit the future usefulness of nourishment as a way to satisfy the desire for both a dynamic beach and coastal development next to the beach. Thus, it behooves us to maintain maximum management options for addressing beach migration and [sea level rise] by minimizing new development near the beach. . . .[227]

Ruppert further explains that:

> While Florida's current CCCL permitting program has increased the safety of new structures built in

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Id. at 752–53 (citations omitted).

226. Surfrider Foundation, Inc. v. Town of Palm Beach, 2009 WL 2507236 (Fla. Dept. Env. Prot. 2009).

227. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162, at 73–74.

> the coastal zone, it fails to adequately protect the ability of the beach to migrate, fails to account for [sea level rise], and encourages increased development due to beach nourishment[228]. These failings have resulted in increased development subject to both immediate coastal hazards and the long-term problems of [sea level rise].
>
> Increasing beach erosion and [sea level rise] bring into question the feasibility of Florida's current focus on beach nourishment as a means to avoid the conflict between development and beach migration. The . . . granting of erosion credits for nourishment projects and failure to account for [sea level rise] in current permitting decisions foster development that will require protection from beach migration and [sea level rise] or will be lost to the sea. In areas which are already densely developed, the incremental cost of such new development may be minimal as the area would likely already have been prioritized for shore protection from [sea level rise] anyway. However, new development in previously undeveloped areas and increasing density in sparsely developed areas is adding rapidly to the amount of land on Florida's coast that will receive priority for protection . . . .
>
> Protection from [sea level rise] in the future will exact far higher costs than we have yet seen from shore protection efforts in Florida. As the speed and magnitude of [sea level rise] increase, nourishment alone will likely not be able to keep up due to cost and lack of sand as well as the increasing energy required for nourishment. Once nourishment is no longer feasible in a developed area, two choices will remain: either armor and lose the beach or move human development back from the beach and allow the shoreline to migrate. Such choices will be very difficult as the losses from either option will be tremendous. . . . .
>
> [R]eforms to Florida's . . . permitting program for coastal construction are also urgently needed

228. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162, at 97. *See* also the discussion of how seawalls can provide a false sense of security to landward owners, causing them to make questionable investments in improvements, at Columbia Center for Climate Change Law Columbia Law School (October 2013), at page 67-68.

> to discourage new coastal construction or redevelopment in areas vulnerable to likely [sea level rise] and to ensure that redevelopment or new development that is permitted be conditioned to prevent its inclusion as justification for future armoring and loss of our beaches. Anything less amounts to the State of Florida abdicating its public trust duty to manage and preserve Florida's beaches for the good of all its citizens.[229]

E. Florida's Environmental Resource Permitting Program

Florida, like most states, maintains its own wetland-permitting program. Florida's "Environmental Resource Permit" law and its implementing regulations provide ample authority for the state's Department of Environmental Protection and five water management districts to strictly limit the granting of permits authorizing new wetland destruction that would decrease Florida's ability to absorb greenhouse gas emissions, attenuate floods, and allow for wetland habitat migration. Florida's law—combined wetland and storm water permitting—protect water resources from development impacts by precluding permitting authorization for ecological harm, which goes beyond a point of acceptability.[230]

1. The Environmental Resource Permit Public Interest Standard

The statutory "Public Interest" criteria for approval of Environmental Resource Permits, emphasizes the protection of natural systems, requires cumulative and secondary impact analysis and mitigation for unavoidable impacts, and requires projects to be not contrary to or clearly in the public interest, protecting the state against unacceptable impacts to wetlands and other water resources. On their face, these criteria support a determination that a proposed project is not in the public interest if, based on a preponderance of the evidence, its adverse environmental impacts exceed those which the affected ecosystem can handle.

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229. Ruppert, SEA GRANT LAW& POL'Y J, *supra* note 162, at 97-98.
230. FLA. STAT. § 373.016 (2014).

Section 373.414(1), of the Florida Statutes, provides:

> As part of an applicant's demonstration that an activity . . . will not be harmful to the water resources or will not be inconsistent with the overall objectives of the district . . . the applicant [shall] provide reasonable assurance that state water quality standards . . . will not be violated and reasonable assurance that such activity . . . is not contrary to the public interest. However, if such an activity significantly degrades or is within Outstanding Florida Water . . . the applicant must provide reasonable assurance that the proposed activity will be clearly in the public interest.
> In determining whether an activity . . . is not contrary to the public interest or is clearly in the public interest, the [permitting agency] shall consider and balance the following criteria:
> 1. Whether the activity will adversely affect the public health, safety, or welfare or the property of others;
> 2. Whether the activity will adversely affect the conservation of fish and wildlife, including endangered or threatened species, or their habitats;
> 3. Whether the activity will adversely affect navigation or the flow of water or cause harmful erosion or shoaling;
> 4. Whether the activity will adversely affect the fishing or recreational values or marine productivity in the vicinity of the activity;
> 5. Whether the activity will be of a temporary or permanent nature;
> 6. Whether the activity will adversely affect or will enhance significant historical and archaeological resources . . . ; and
> 7. The current condition and relative value of functions being performed by areas affected by the proposed activity.[231]

The law supports a denial of a wetland permit in cases of damage to the environment that cannot be mitigated.[232]

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231. FLA. STAT. § 373.414(1)(a) (2014).
232. *See* Grosso, *supra* note 32, at 718-24.

2. Minimization and Avoidance

State rules emphasize requiring a permit applicant to make all practicable modifications to the development proposal that would avoid or eliminate wetland impacts.[233] These requirements that try to avoid wetland impacts altogether, and then require full mitigation to offset unavoidable impacts are policy decisions to ensure the sustainability of wetland and water resources. But not all wetland impacts can be approved on the strength of mitigation, For example, the Rules of the South Florida Water Management District state, "[p]rotection of wetlands and other surface waters is preferred to destruction and mitigation due to the temporal l oss of ecological value and uncertainty regarding the ability to recreate certain functions associated with these features."[234]

3. Mitigation Requirements to "Offset" Wetland Impacts

Florida's statutory approach to wetland mitigation, if implemented correctly by permitting agencies, fosters the sustainability of wetlands and water resources. If an application does not meet the public interest test, the agency "shall consider measures proposed by or acceptable to the applicant to mitigate adverse effects that may be caused by regulated activity."[235] Mitigation must offset the adverse impacts to the specific functions of the specific wetlands being impacted.[236] The mitigation must address the negative factors in the public interest test that tipped the balance against the public interest.[237]

In *Florida Power Corp. v. Florida Department of Environmental Regulation*,[238] the Department held that, although there is no absolute "no net loss" standard for mitigation, the avoidance or minimization of net loss is an important guiding

233. Rule 40E-4.301(3), Florida Administrative Code, requires an applicant to explore and implement practicable design modifications to eliminate and reduce wetland and surface water impacts. See Orlando Cent. Park, *Inc. v. S. Fla. Water Mgmt. Dist.*, 9 F.A.L.R. 1305, 1319–20, 1330 (DOAH 1987); *Dibbs v. Dep't of Envtl. Prot.*, Case No. 94-509 (DOAH Apr. 4, 1995); *VQH Dev., Inc.*, DOAH Case No. 92-7456, 15 F.A.L.R. 3407, 3411 (Dep't of Envtl. Prot. Final Order, Aug. 13, 1993) aff'd 642 So. 2d 755 (Fla. 2d Dist. Ct. App. 1994); *Cnty. Line Coal., Inc. v. Sw. Fla. Water Mgmt. Dist.*, Case No. 98-2927 (DOAH 1999); see, e.g., Rule 62-312.060, F.A.C., § 4.2.1.2, B.O.R.

234. BASIS OF REVIEW FOR ENVIRONMENTAL RESOURCES PERMIT APPLICATIONS, SFWMD § 4.3.

235. FLA. STAT. § 373.414(1)(b) (2014).

236. *Id.*; Southwest Florida Management District v. Charlotte County, 774 So. 2d 903, 910-12 (Fla. 2d DCA 2001).

237. *See* generally McCormick v. City of Jacksonville, 12 F.A.L.R. 960 (DER 1990).

238. 92 E.R. F.A.L.R. 56 (Fla. Dep't of Envtl. Regulation Final Order Apr. 11, 1992).

principle of mitigation.[239] Since mitigation by preservation necessarily results in loss of jurisdictional wetlands, the Department generally accepts preservation mitigation only after on-site wetland creation and/or enhancement is shown to be not feasible or not sufficient to tip the public interest balancing test "scales" in favor of permit issuance.[240]

Florida law recognizes that some wetlands cannot be mitigated because they are particularly unique or provide functions that cannot be re-created. As Section 4.3 of the South Florida Water Management District's Basis of Review makes clear:

> Protection of wetlands and other surface waters is preferred to destruction and mitigation due to the temporal loss of ecological value and uncertainty regarding the ability to recreate certain functions associated with these features. Mitigation will be approved only after the applicant has complied with the requirements . . . regarding practicable modifications to eliminate or reduce adverse impacts. . . . . In certain cases, mitigation cannot offset impacts sufficiently to yield a permittable project. Such cases often include activities which significantly degrade Outstanding Florida Waters, adversely impact habitat for listed species, or adversely impact those wetlands or other surface waters not likely to be successfully recreated.[241]

Where mitigation will not offset the expected adverse impacts, the state must reject a mitigation plan and deny a requested permit.[242]

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239. *Id.* at 20 (remanding for determination on the adequacy of proposed mitigation).

240. *Id.* at 17.

241. BASIS OF REVIEW FOR ENVIRONMENTAL RESOURCES PERMIT APPLICATIONS, SFWMD § 4.3.

242. *See* Brown v. So. Fla. Water Mgmt. Dist., DOAH Case No. 04-000476 (Final Order Sept. 13, 2004) (denying an ERP where it was determined that the proposed mitigation for a dock project would not adequately offset impacts to a listed species of seagrass); *Charlotte Cnty. v. IMC-Phosphates Co.*, 4 E.R. F.A.L.R. 20 (Final Order Sept. 15, 2003) (denying a permit where the applicant failed to demonstrate that its mitigation proposal would maintain or improve the natural functions of the diverse types of wetland systems present at the site prior to commencement of the project); *Kramer v. Dep't of Envtl. Prot.*, 2 E.R. F.A.L.R. 225, 236 (Final Order Feb. 26, 2002) (denying an ERP where the mitigation plan was found inadequate and "experimental").

4. Cumulative Impact Analysis

The requirement that permitting agencies "consider the cumulative impacts" of requested ERPs [243] provides ample authority to limit or deny permit applications that would compromise the capacity of wetland ecosystems to function and survive based upon an analysis of known global warming and sea level rise science. The cumulative impact analysis requirement is a sustainability requirement for the wetland, water, and related resources that would be impacted by proposed development projects.[244] The law requires that, in deciding whether to grant or deny a wetland permit, agencies "shall consider the cumulative impacts upon surface water and wetlands . . . within the same drainage basin . . . of":

> 1. The activity for which the permit is sought.
> 2. Projects which are existing or activities regulated under this part which are under construction or projects for which permits or [jurisdictional] determinations . . . have been sought.
> 3. Activities which are under review, approved, or vested . . . or other [wetland-regulated] activities . . . which may reasonably be expected to be located within surface waters or wetlands . . . in the same drainage basin . . . based upon the comprehensive plans . . . of the local governments having jurisdiction over the activities, or applicable land use restrictions and regulations.[245]

Reported cases support the view that this consideration of cumulative impacts is designed to prevent an end result for the impacted environment that exceeds its tolerance thresholds.[246]

F. Florida's Consumptive Water Use Permitting Decisions

The legal standards governing Consumptive Water Use permit application by Florida's five water management districts are as explicit in their intent to protect the public's water as they are

243. FLA. STAT. § 373.414(8)(a) (2014).
244. Sierra Club v. St. Johns River Water Mgmt., 816 So. 2d 687, 688 (Fla. 5th DCA. 2002).
245. FLA. STAT. § 373.414(8)(a) (2014).
246. Grosso, *supra* note 32, at 723-24.

broad in the discretion granted to the agencies. An executive branch with the commitment and political will to prioritize the protection of the Florida's water over the provision of cheap, virtually unconditional water to new development would enjoy ample legal authority to do so. The standard for the approval of a Consumptive (Water) Use Permit unambiguously precludes the allowance of harm to the state's water resources by requiring permitting agencies to "assure" that permitted water uses are "not harmful to the water resources of the area."[247]

To qualify for a permit, an applicant must prove, among other things, that the proposed use is a "[r]easonable-beneficial" [248] one and is "consistent with the public interest." [249] In making these decisions, permitting agencies "shall take into account cumulative impacts on water resources and manage those resources in a manner to ensure their sustainability."[250] Also, it is state policy "[t]o promote the conservation, replenishment, recapture, enhancement, development, and proper utilization of surface and groundwater"[251] and "[t]o promote the availability of sufficient water for all existing and *future* reasonable-beneficial uses and natural systems."[252]

By its plain meaning, the statute requires current water permitting decisions to consider the future water use scenarios projected to occur over the duration of the permit as a result of sea level rise and climate changes. Beyond that, given the reality of how the issuance of these permits creates a powerful political expectation (that has almost never failed to materialize) that the permit will be renewed at the same or higher level of withdrawal, the state's water management districts should provide the public with a considerable margin for error and not grant permits now for levels of withdrawal that are likely to be unsustainable in the

247. FLA. STAT. § 373.219(1) (2014) (emphasis added).

248. *Id.* § 373.019(16) (defining a "[r]easonable-beneficial use" as a "use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest").

249. *Id.* § 373.223(1).

250. *Id.* § 373.016(2).

251. *Id.* § 373.016(3)(b).

252. *Id.* § 373.016(3)(d) (emphasis added).

future.[253] Of particular importance is the need to prevent the exacerbation of Florida's existing saltwater intrusion problem.[254] As noted by Verchick and Hall:

> [T]he Southwest Florida Water Management District (SFWMD) and the Florida Department of Environmental Protection are fighting climate-induced saltwater intrusion into the aquifers of southwest Florida by invoking a variety of preexisting legal authorities. These include the SFWMD's regulatory powers to limit water-use permits and encourage better land-use planning, its ability to promote municipal water conservation through financial assistance, and its authority under the Florida Water Resource Act to protect surface water and reduce groundwater demand.[255]

Verchick and Hall also comment that, "[t]he SFWMD is charged with protecting its residents' water supply, and it cannot do that without factoring climate impacts into its future calculations."[256]

In response to this apparent scientific reality, actions on consumptive use permits should, where relevant, be conditioned so as to assure significant levels of water conservation and other sustainability measures. Among these can be landscaping requirements and water use restrictions. It is easily supported by the legal authority, governing Florida water management district actions relative to Consumptive Use Permits (CUP), to require local government governing bodies (who are often also the governing body of the local water utility which serves as the applicant for a CUP) to enact meaningful native landscaping requirements and increase the planting of native shade trees as a condition of CUP issuance or renewal.[257]

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253. For a general discussion of the environmental protection requirements of Florida's Consumptive Water Use Permit program, *see* Grosso, *supra* note 32, at 747-51; *see also* Richard Hamann, *Consumptive Use Permitting Criteria*, FLA. ENVTL. & LAND USE L. 14.2-1 (2001).

254. *See, e.g.*, FLA. ADMIN. CODE r. 40E-2.301(1) (2014). A rule of the South Florida Water Management District that requires applicants to demonstrate the proposed water use will not cause significant saline water intrusion, cause pollution, or cause adverse environmental impacts.

255. Verchick & Hall, *supra* note 14, at 2226.

256. *Id.* at 2228-29.

257. For example, local governments could require at least 75% native, drought-resistant landscaping retention or planting requirements for all new development approvals. The Department of Environmental Protection and the five water management

Next, water conservation efforts significantly greater than those in place today could also be conditions of such permits. To the extent that conservation efforts (easily, and by far, the least expensive) cannot meet a community's potable water needs, more costly engineered options to be analyzed would include desalination of water from existing saltwater-intruded wellfields, and the construction of tide gates in water supply canals to prevent upstream migration of saltwater.

G. Florida Common Law: Doctrines of Public Necessity and Public Trust

The common law doctrines of necessity and public trust are perhaps most accurately characterized as having more promise or potential than demonstrated capability to meaningfully address climate and sea level rise issues. Several authoritative commentators have explored the significant potential of these common law doctrines to be applied meaningfully to the "new" issues of climate change and sea level rise.

The state common law doctrine of public necessity can potentially be expanded to allow states like Florida more latitude in allocating water where supplies are affected by climate change. [258] The common law public trust doctrine could be expanded to require protection of public drinking water resources.[259]

H. Special Considerations: Cross-Cutting Issues

Four approaches to the use of existing legal mechanisms in particular are essential to a successful response to climate and sea level rise-related issues. Agencies administering land use and zoning, federal, state and local wetland and wildlife permitting and other laws should place an immediate emphasis on an aggressive use of (1) the prevention of cumulative impacts; (2) the preservation of natural areas and open space; (3) adaptive

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districts could also require this for all development projects for which Environmental Resource (wetland) permits are issued, as a means of limiting the secondary water resource impacts of the permitted development.

258. Robin Kundis Craig, *Adapting Water Law to Public Necessity: Reframing Climate Change Adaptation as Emergency Response and Preparedness*, 11 VT. J. ENVTL. L. 709, 710 (2010).

259. Robin Kundis Craig, *Adapting to Climate Change: The Potential Role of State Common-Law Public Trust Doctrines*, 34 VT. L. REV. 781, 781 (2010); Verchick & Hall, *supra* note 14, at 2226.

management; and (4) the precautionary principle in the face of uncertain or disputed science.

I. Cumulative Impacts

Ecosystems that are already degraded or impaired are more vulnerable to, and less able to adapt, to climate-related impacts.[260] "Thus, by more stringently addressing these directly anthropogenic, non-climate change stressors [land use and permitting decisions] can do much to increase the resilience of ecosystems."[261] Zealous fidelity by Florida agencies to the myriad cumulative impact analysis requirements found throughout the law is critical to the effective use of existing legal authority to reduce the adverse impacts of development decisions on climate change and sea level rise resiliency. The most important cumulative impact analysis regulatory requirements are those that apply to local government coastal management plans (which must protect "human life and to control proposed development and redevelopment in order to protect the coastal environment and give consideration to cumulative impacts"),[262] state coastal construction permits,[263] wetland permits,[264] and consumptive water use permits.[265]

J. Open Space

Given that one of the most damaging existing stressors for many species is loss of habitat, one of the most effective adaptation measures humans could implement may be to preserve as much connected and varied open space as is physically and politically possible and let species and ecosystems sort themselves out in response to climate change impacts.[266]

Florida agencies should thus use their legal authority to ensure that natural areas large and healthy enough to adapt to climate changes and sea level rise. Protected areas should be able to tolerate flooding, wild fires, storm damage and other

260. Craig, *supra* note 32, at 36-37, 42, 48; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE SYNTHESIS REPORT 65 (2007), *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf.

261. Craig, *supra* note 80, at 43–45.

262. FLA. STAT. § 163.3178(2)(j) (2014).

263. *See id.* § 161.041(1)-(2); *see also id.* § 161.053(4)(a).

264. *See id.* § 373.414(8)(a).

265. *See id.* § 373.016(2).

266. Craig, *supra* note 80, at 51–52.

impacts, and enjoy enough habitat diversity and connectivity to accommodate new species.[267]

K. Adaptive Management

"'[A]daptation' is not a one-time event. Rather, we have entered an era of long-term continual change that must be considered by decision-makers to inform ongoing adaptation strategies."[268] Adaptive management is essential to climate change adaptation.[269] Regulatory standards and individual decisions must allow for adaptive management. The Legislature, local governments, and executive agencies must be willing to avoid seeing statutes and rules as static, and instead willing to amend them when necessary to respond to new information. Individual regulatory decisions, where necessary and appropriate, should include conditions requiring removal of or changes to authorized structures, adjustments of setbacks or other aspects of the allowances, prohibitions and conditions of approval. They should avoid rigidly fixing an applicant's rights and should maintain reasonable opportunities (considering the property rights of permit-holders) to require adjustments to permitted structures and uses as needed, based on monitoring information, to respond to unforeseen or different future scenarios. Regulatory systems must respond to the reality that climate and sea level rise science and ecological responses are uncertain and evolving.[270]

A Florida example of adaptive management on a programmatic scale, relative to a major ecological restoration and public works project, is the 2000 Water Resources Development Act authorizing the Comprehensive Everglades Restoration Plan, which recognized the need for flexibility and specifically authorized adaptive management as an integral part of its implementation. [271] Authorizing a multi-component public works project expected to take over twenty years to complete, the Act calls for "future authorized changes," based on "new information resulting from changed or unforeseen circumstances, new scientific or technical information or information that is developed through the principles of adaptive management contained in the Plan" to be

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267. *Id.* at 52.

268. NATIONAL WATER PROGRAM 2012 STRATEGY: RESPONSE TO CLIMATE CHANGE, EPA.GOV, 19 (2012), *available at* http://water.epa.gov/scitech/climatechange/upload/NWP_Draft_Strategy_03-27-2012.pdf.

269. Craig, *supra* note 80, at 65.

270. Verchick & Hall, *supra* note 14, at 2231.

271. Water Resources Development Act of 2000, Pub. L. No. 106-541, § 601(b)(2)(C)(xi), 114 Stat. 2683 (2000).

"integrated into the implementation of the Plan" in order to "ensure that the goals and objectives of the Plan are achieved."[272]

L. Scientific Uncertainty and Dispute: The Precautionary Principle

Regulatory and public policy decisions related to climate and sea level change must be made in the realm of science that is unfolding and uncertain[273] and physical and ecological impacts that are difficult to predict.[274] This can lead to political and threatened legal obstacles to the implementation of necessary measures as regulated interests contest the adoption of specific increased land use or development restrictions which they perceive as more burdensome than existing provisions.[275] While such interests might characterize changes to these standards as inappropriate, "the police power of the state is not static . . . [and] courts are in duty bound to recognize its expansion in proper cases to meet conditions which necessarily change as business progresses and civilization advances."[276]

Scientific conclusions are inherently subject to uncertainty or debate among experts, and Florida courts give significant deference to the technical and scientific expertise of agency staff so long as it has a rational basis and is not scientifically arbitrary—particularly where there is scientific uncertainty and competing scientific positions.[277] Courts recognize the precautionary principle to support regulation that resolves any scientific doubt in favor of protecting the resource.[278]

IV. CONCLUSION

With so much at stake, and with its heightened vulnerability, state, regional, and local agencies in Florida must acquire the political will to maximize the use of the police power as necessary to reduce climate change impacts and prepare for those that are inevitable. At the same time, government efforts must include early and extensive private sector and non-governmental organization involvement to maximize the robustness and

272. *Id.* § 601(h)(3)(C)(i)(I)-(II).
273. Verchick & Hall, *supra* note 14, at 2209.
274. *See* Craig, *supra* note 80, at 35–36.
275. *Id.* at 43.
276. L. Maxcy, Inc. v. Mayo, 139 So. 121, 131 (Fla. 1931).
277. *See* Grosso, *supra* note 32, at 770-72.
278. *See id.* at 772-74.

acceptance of base information and increase the chances that the political process will render the necessary policy changes.

As one of Florida's closest observers of coastal development policy has suggested:

> While many commentators have made valuable suggestions on options for managing the conflict between migrating shorelines caused by rising seas and human development, the best option from an economic and environmental perspective is to avoid the conflict by not placing human development in the way of migrating beaches. If development is placed in the way of migrating beaches, such development should have the technical, legal, and financial ability to move back from the migrating beach.[279]

Also, "even as we develop strategies to manage such conflicts, we must urgently seek to avoid incurring tremendous additional costs and losses inherent in such conflict by acting now to preserve areas where allowing shoreline migration is most reasonable."[280]

The essence of Ruppert's recommendations apply equally to all state and local government land or water decisions (as well as those of federal agencies) with any expected impact on Florida's contributions and responses to climate-related impacts.

An existing advantage enjoyed by the state is the mature body of planning and regulatory laws, and inter-governmental collaboration models, such as the Southeast Florida Regional Climate Compact in southeast Florida supported by resolutions of four counties and a number of municipalities, who "recognize that coordinated and collective action on [global climate change] … will best serve the citizens of the region, and agree to work "with", and not "at cross-purposes" [281] to each other.

Such mechanisms can, to some extent, fill the apparent void in state - level climate policies.[282] An essential part of any responsible

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279. Thomas K. Ruppert, *Eroding Long-Term Prospects for Florida's Beaches: Florida's Coastal Construction Control Line Program*, 1 SEA GRANT L. & POL'Y J., 65, 73 (2008).

280. *Id.*

281. *See* discussion at pages associated with footnotes 20 and 21, infra. Southeast Florida Regional Climate Change Compact, at 2–3 (*available at* http://www.southeastfloridaclimatecompact.org//wp-content/uploads/2014/09/compact.pdf (last visited Mar. 20, 2015). *Id*. at 2–3.

282. IN MAR. 2015, VARIOUS NEWS OUTLETS REPORTED THAT THE FLORIDA GOVERNOR'S OFFICE HAD BANNED STATE EMPLOYEES FROM REFERRING IN SPOKEN OR WRITTEN PRESENTATIONS THE PHRASE "CLIMATE CHANGE", ALTHOUGH THE GOVERNOR'S OFFICE DENIED

response to this enormous threat to our state will, however, require the Legislature and the Governor to support and take highly protective actions on review of local comprehensive plans; wetland, water use, and coastal construction permits, and land acquisition, to an extent and for a duration not seen before in our history. The law allows Florida's political and executive bodies to meaningfully reduce our contributions to, and prepare us for, the climate change that threatens our state. Indeed, Florida law *requires* the state to achieve physical, ecological and fiscal results that could prevent our land, water, communities and infrastructure from being overwhelmed by the environmental and physical changes otherwise sure to come.

THAT IT HAD SUCH A POLICY. *SEE* E.G. *THREATENED BY CLIMATE CHANGE, FLORIDA REPORTEDLY BANS TERM 'CLIMATE CHANGE'*, WASHINGTON POST, MAR. 9, 2015 (*AVAILABLE AT* HTTP://WWW.WASHINGTONPOST.COM/NEWS/MORNING-MIX/WP/2015/03/09/FLORIDA-STATE-MOST-AFFECTED-BY-CLIMATE-CHANGE-REPORTEDLY-BANS-TERM-CLIMATE-CHANGE/)(LAST VISITED ON MAR. 22, 2015).

WHY IS THE MAGNITUDE OF A REGULATION RELEVANT TO DETERMINING WHETHER IT TAKES PROPERTY?

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I. INTRODUCTION

The Fifth Amendment of the U.S. Constitution requires the government to pay just compensation when it takes private property for public use.[1] When the government formally takes ownership of private property it clearly must pay compensation, regardless of how much property it takes.[2] The value of the property determines how much compensation is just, but not whether compensation is due in the first place. And the value of the property taken in relation to value of the private owner's property as a whole is irrelevant.

But when the government takes private property by regulating it rather than by formally taking ownership, the government may not have to pay compensation. Courts determine whether the regulation is a taking, requiring payment of compensation, by considering the magnitude and character of the regulatory burden and how it is distributed among property owners.[3] A regulation that deprives the owner of all economically viable use of the property as a whole is a compensable taking, unless the owner did not really have the right to use the property in a viable way under background principles of state law.[4] A regulation that deprives the owner of a high percentage of the whole property's value is more likely to be a compensable taking than a regulation that deprives the owner of a small percentage of that value.

This article considers why the government must pay compensation for even small parts of larger parcels of land when it formally takes ownership of the land, but does not have to pay compensation when regulation deprives the owner of a small part of the use and value of a parcel of land. In other words, it considers why the magnitude of the regulation's economic impact is relevant to the decision whether the regulation is a taking. In Part II, I describe four possible explanations that appear in the U.S. Supreme Court's opinions: (1) requiring compensation for all regulatory deprivations would simply prevent effective government; (2) the larger the economic impact, the more

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1. U.S. CONST. amend. V.

2. *See* Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 322 (2002) ("When the government physically takes possession of an interest in property for some public purpose, it has a categorical duty to compensate the former owner, regardless of whether the interest that is taken constitutes an entire parcel or merely a part thereof.").

3. *See* Lingle v. Chevron U.S.A., Inc., 544 U.S. 528, 542 (2005); Penn Cent. Transp. Co. v. New York, 438 U.S. 104, 124 (1978).

4. Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1019, 1027 (1992).

disproportional and unfair the regulatory burden; (3) the larger the economic impact, the more the regulation is functionally equivalent to the exercise of eminent domain; and (4) unless its economic impact is too large, a police power regulation of land is merely the exercise of a reserved power that qualifies all private property ownership and therefore takes nothing that actually belonged to the private owner. In Part III, I compare the practical and theoretical strengths and weaknesses of these four explanations. In Part IV, I conclude that, even though the Supreme Court has most recently emphasized functional equivalence as a justification for magnitude considerations, the best explanation, practically and theoretically, is that regulations of smaller magnitude are exercises of a reserved power qualifying property titles and therefore take nothing from the owner.

II. FOUR EXPLANATIONS OF WHY MAGNITUDE IS RELEVANT

The Fifth Amendment simply says that private property shall not be "taken" for public use without just compensation.[5] This clause itself does not suggest a magnitude consideration. Regardless of how much property the government takes, it must pay just compensation for whatever it took, although the amount of compensation obviously will increase with the amount or value of the property taken.

Regulations can take property without an official declaration that the property belongs to the government. The prevailing understanding of "property" is that it signifies legal rights in relation to things, not the things themselves.[6] By requiring or prohibiting certain acts in relation to property, regulation may take property for the benefit of the public. Practically, regulations will never take all of a person's property. But just as the government must pay just compensation when it takes one acre of an owner's 10,000-acre ranch, one might reason that the government must pay compensation when it takes only some of an owner's pre-existing property rights.

But that is not today's law of regulatory takings. Instead, courts consider the magnitude of the regulatory burden: what rights were taken (and consequently how much property value was

5. U.S. CONST. amend. V.

6. *See, e.g.*, United States v. Gen. Motors Corp., 323 U.S. 373, 377-78 (1945) (describing as "more accurate" an understanding of "property" as "the group of rights inhering in the citizen's relation to the physical thing, as the right to possess, use and dispose of it").

taken) in relation to what rights the owner retained. The greater the relative extent of the deprivation, the more likely the regulation will be considered a compensable taking.[7]

A. The Practical Explanation: Requiring Compensation for All Regulatory Property Deprivations Would Be Too Expensive

One explanation the U.S. Supreme Court has suggested for considering magnitude is simply that government could not possibly afford to pay compensation for all takings of recognized property rights. In *Pennsylvania Coal Co. v. Mahon*,[8] the Court said that when an exercise of the police power "reaches a certain magnitude, in most if not in all cases there must be an exercise of eminent domain and compensation to sustain the act."[9] One of the Court's reasons for this conclusion was that "[g]overnment hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law."[10] The Supreme Court in *Lucas v. South Carolina Coastal Council* referred to this justification as "the *functional* basis for permitting the government, by regulation, to affect property values without compensation."[11] I will refer to it as the practical explanation of why magnitude is relevant.

B. The Distributional Explanation: The Larger the Regulatory Burden, the More Likely the Regulation Is Disproportional and Unfair

Another reason that the magnitude of the economic impact may matter is that it may help indicate when a regulatory burden is disproportional and unfair. I will refer to this explanation as the distributional explanation.

The Supreme Court has emphasized that the Just Compensation Clause is intended to avoid disproportional and unfair burdens on individual property owners. The Court has said many times that the purpose of the Just Compensation Clause is "to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should

7. *See, e.g.*, *Penn Central*, 438 U.S. at 130–31.
8. 260 U.S. 393 (1922).
9. *Id.* at 413.
10. *Id.*
11. 505 U.S. 1003, 1018 (1992).

be borne by the public as a whole."[12] In *Penn Central Transportation Co. v. City of New York*, the Court indicated that a regulatory taking occurs "when 'justice and fairness' require that economic injuries caused by public action be compensated by the government, rather than remain disproportionately concentrated on a few persons."[13] In its more recent opinion in *Lingle v. Chevron U.S.A.*, the Court tried to clarify the relevant considerations in regulatory takings, again quoting the previous statement and stressing that the relevant considerations are "the magnitude or character of the burden" and "how any regulatory burden is distributed among property owners."[14]

Although this principle has been expressed and understood in different ways, the common denominator is that a regulatory burden is considered a taking if it is unfair: unfair because the public should bear the burden, because it is disproportional, because the burdened owner is unfairly targeted, because the owner is burdened but receives no reciprocal or compensating benefit.[15]

To decide whether a regulatory burden is fairly distributed, one must consider who bears the burden, how much of a burden they bear, and why the burden is placed on them. The larger the burden, the more unusual. The more unusual the burden, the more likely it is to be unfair to require some individuals to bear the burden rather than for the public as a whole to bear it.[16] As the Court observed in *Lucas*, when the burden is so great that it denies any "productive or economically beneficial use of land," then "it is less realistic to indulge our usual assumption that the legislature is simply 'adjusting the benefits and burdens of

12. Armstrong v. United States, 364 U.S. 40, 49 (1960); *accord* Arkansas Game & Fish Comm'n v. United States, 133 S. Ct. 511, 518 (2012); Palazzolo v. Rhode Island, 533 U.S. 606, 617–18 (2001) ("These inquiries are informed by the purpose of the Takings Clause, which is to prevent the government from 'forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.'"); *see also* Carlos A. Ball & Laurie Reynolds, *Exactions and Burden Distribution in Takings Law*, 47 WM. & MARY L. REV. 1513, 1534–35 (2006) ("[T]he Armstrong principle is one of the few concepts associated with takings law on which there seems to be a strong and ongoing agreement among members of the Court.").

13. *Penn Cent.*, 438 U.S. at 124.

14. 544 U.S. at 542.

15. *See* Stephen Durden, *Unprincipled Principles: The Takings Clause Exemplar*, 3 ALA. C. R. & C.L. L. REV. 25, 41–53 (2013) (discussing various expressions and applications of the *Armstrong* principle).

16. *See* Mark W. Cordes, *The Fairness Dimension in Takings Jurisprudence*, 20 KAN. J.L. PUB. POL'Y 1, 29 (2010) ("A focus on economic impact makes sense from the perspective of fairness. All else being equal, regulations that result in severe economic impacts on landowners will be viewed as less fair than those with modest impacts.").

economic life' in a manner that secures an 'average reciprocity of advantage' to everyone concerned."[17]

The smaller the regulatory burden, on the other hand, the more we may conclude that, even though the burdened owners suffer a loss, they suffer comparable gains in other ways that are just part of this process of adjusting the benefits and burdens of economic life.[18]

C. The Functional Equivalence Explanation: A Less Burdensome Regulation Is Not Sufficiently Like a Physical Seizure

Another explanation of the relevance of magnitude is that a regulation is a taking only if it is so burdensome that it is functionally equivalent to a physical seizure of the land. So I'll call this the functional equivalence explanation.

The text of the Fifth Amendment can be interpreted to suggest this view. "Property" in the Fifth Amendment may be read not in the lawyerly sense to mean legal rights in relation to things, but instead to mean the things themselves. If so, then the text of the Fifth Amendment says that the government has to pay compensation only when it takes a thing away from somebody and says nothing about paying compensation for merely taking away rights in relation to a thing. The Supreme Court has expressed this argument before:

> The text of the Fifth Amendment itself provides a basis for drawing a distinction between physical takings and regulatory takings. Its plain language requires the payment of compensation whenever the government acquires private property for a public purpose, whether the acquisition is the result of a condemnation proceeding or a physical appropriation. But the Constitution contains no comparable reference to regulations that prohibit a property owner from making certain uses of her private property.[19]

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17. *Lucas*, 505 U.S. at 1017–18 (citations omitted).

18. *See* Cordes, *supra* note 16, at 29.

19. Tahoe-Sierra Pres. Council, Inc. 535 U.S. at 321–22 & n.17 (2002) ("In determining whether government action affecting property is an unconstitutional deprivation of ownership rights under the Just Compensation Clause, a court must interpret the word 'taken.' When the government condemns or physically appropriates the property, the fact of a taking is typically obvious and undisputed. When, however, the owner contends a taking has occurred because a law or regulation imposes restrictions so severe that they are tantamount to a condemnation or appropriation, the predicate of a

When the government physically seizes land, of any size and any percentage of a whole parcel, the government clearly has taken a thing from another. The government must pay just compensation for such a seizure or physical invasion, which the Court has called the "paradigmatic taking."[20] But if "property" is understood to mean the thing and not rights in relation to it, then when the government merely restricts what the owner may do with the land, the government has not taken the thing away from the owner. The government has taken a right in relation to the thing, but not the thing itself. The owner still has control and use of it.

Regulations do not usually take things from people, just certain rights in relation to those things. But the more extensive a regulation, the more it approaches being a physical seizure – a taking away of the thing itself, not just certain rights in the thing. The Court has recognized this from very early on in the development of takings law. In the 1871 decision of *Pumpelly v. Green Bay*,[21] the Court said:

> It would be a very curious and unsatisfactory result, if . . . it shall be held that if the government refrains from the absolute conversion of real property to the uses of the public it can destroy its value entirely, can inflict irreparable and permanent injury to any extent, can, in effect, subject it to total destruction without making any compensation, because, in the narrowest sense of that word, it is not *taken* for the public use.[22]

The Court has expressed and reaffirmed this reasoning a number of times since. In *Mahon*, the Court said, "[t]o make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating it or destroying it."[23] Other cases have quoted and reaffirmed this reasoning from *Pumpelly* and *Mahon*.[24] In dissent, Justice

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taking is not self-evident, and the analysis is more complex."); *accord* Brown v. Legal Found. of Wash., 538 U.S. 216, 233 (2003).

20. *Lingle*, 544 U.S. at 537.

21. 80 U.S. 166 (1871).

22. *Id.* at 177-78.

23. Pa. Coal Co. v. Mahon, 260 U.S. 393, 414 (1922).

24. *See, e.g.*, Stop the Beach Renourishment, Inc. v. Florida Dep't of Envtl. Prot., 560 U.S. 702, 713 (2010) ("Moreover, though the classic taking is a transfer of property to the State or to another private party by eminent domain, the Takings Clause applies to other

Brennan said, "From the property owner's point of view, it may matter little whether his land is condemned or flooded, or whether it is restricted by regulation to use in its natural state, if the effect in both cases is to deprive him of all beneficial use of it."[25] The Court subsequently noted Justice Brennan's point as a possible justification for the rule that a "total deprivation of beneficial use" is a taking, because, "from the landowner's point of view, [it is] the equivalent of a physical appropriation."[26]

The Court's more recent decision in *Lingle v. Chevron* emphasizes this explanation for the relevance of magnitude in regulatory takings cases. The Court said that all of its tests for determining whether regulation effects a taking "share a common touchstone," as "[e]ach aims to identify regulatory actions that are functionally equivalent to the classic taking in which government directly appropriates private property or ousts the owner from his domain."[27] Some have understood *Lingle* to require a regulation to be functionally equivalent to a physical seizure in order to be compensable.[28] From this perspective,

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state actions that achieve the same thing."); First English Evangelical Lutheran Church v. County of Los Angeles, 482 U.S. 304, 316–17 (1987); Kaiser Aetna v. United States, 444 U.S. 164, 174 n.8 (1979); United States v. Dickinson, 331 U.S. 745, 750 (1947).

25. San Diego Gas & Elec. Co. v. City of San Diego, 450 U.S. 621, 652 (1981) (Brennan, J., dissenting).

26. *Lucas*, 505 U.S. at 1017.

27. *Lingle*, 544 U.S. at 539.

28. *See, e.g.*, City of Coeur d'Alene v. Simpson, 136 P.3d 310, 318 n.5 (Idaho 2006) (reading the post-*Lingle* "character" test as encompassing only an inquiry into whether the regulation constitutes a physical invasion); Kafka v. Mont. Dep't of Fish, Wildlife & Parks, 201 P.3d 8, 27–28 (Mont. 2008) ("Regulatory takings, by contrast, turn more on the magnitude of the economic impact and 'the degree to which it interferes with legitimate property interests.' Thus, under the 'character of the governmental action' prong courts should inquire concerning the magnitude or character of the burden imposed by the regulation, and determine whether it is functionally comparable to government appropriation or invasion of private property." (citing *Lingle*, 544 U.S. at 540)); Mansaldo v. State of New Jersey, 898 A.2d 1018, 1024 (N.J. 2006) (concluding that *Lingle* had barred "considerations of 'legitimate state interests'" from takings claims); D. Benjamin Barros, *At Last, Some Clarity: The Potential Long-Term Impact of* Lingle v. Chevron *and the Separation of Takings and Substantive Due Process*, 69 ALB. L. REV. 343, 348 (2005) ("The regulatory takings inquiry, in other words, focuses on the regulation's effect on the private property at issue and asks whether that effect is functionally equivalent to a physical taking."); Nestor M. Davidson, *The Problem of Equality in Takings*, 102 NW. U. L. REV. 1, 34–35 (2008); Robert G. Dreher, *Lingle's Legacy: Untangling Substantive Due Process From Takings Doctrine*, 30 HARV. ENVTL. L. REV. 371, 401 (2006) ("Justice O'Connor's unifying vision of the basic foundation for regulatory takings—their functional equivalence to physical expropriations of property—necessarily directs the courts' inquiry to a single factor of paramount importance: 'the severity of the burden that the government imposes upon private property rights.' Moreover, the clear import from the functional equivalence notion is that the economic burden must be very substantial indeed, approaching if not equaling the total loss that physical expropriation would entail. There remain a multitude of nagging questions in regulatory takings law, but the Court's articulation in *Lingle* of a clear model for what constitutes a regulatory taking will go far to simplify the tangled jurisprudence in the field."); Mark Fenster, *The Stubborn Incoherence of Regulatory*

the magnitude of a regulatory burden is not just relevant to determining whether the regulation is a taking, it is the primary or even sole consideration.

D. The Implied Limitation Explanation: Less Burdensome Regulations Take Nothing Because Property Titles Are Implicitly Subject to Such Regulation

However, there is another explanation evident in the Court's decisions as well. Even if "property" in the Fifth Amendment does signify legal rights rather than the things themselves, the magnitude consideration may be part of determining whether a legal right has been taken from the owner in the first place. I will call this the implied limitation explanation.

A regulation that prohibits or restricts certain rights in relation to land takes nothing from landowners if their title to land did not include those rights in the first place. If a particular title is subject to an easement belonging to another, the title owner could not complain that the easement holder trespassed when using the easement. Likewise, if a particular title is subject to rights belonging to other landowners, or to the government, the title owner cannot complain that a regulation protecting or implementing those rights is a taking of her property rights.

In *Lucas*, the Supreme Court recognized the theoretical possibility that "background principles of the State's law of property" may already have prohibited use of the landowner's beachfront property.[29] If so, a recently-enacted state law restricting development of the property would have taken nothing from the owner even if the magnitude of the regulatory impact was so great that it prohibited "all economically beneficial use of the land."[30]

Takings, 28 STAN. ENVTL. L.J. 525, 572 (2009); Michael B. Kent, Jr., *Construing the Canon: An Exegesis of Regulatory Takings Jurisprudence After* Lingle v. Chevron, 16 N.Y.U. ENVTL. L.J. 63, 100–01 (2008); 2 (ANDERSON'S) AMERICAN LAW OF ZONING § 16.9 (5th ed. 2012) ("Pursuant to the Supreme Court's comments on regulatory takings doctrine in *Lingle*, it seems likely that the courts will tend to view a high degree of economic impact as necessary to establish that a regulation is the functional equivalent of the direct appropriation of or physical ouster from the property affected by the regulatory action.").

29. *Lucas*, 505 U.S. at 1029.

30. *Id.* Of course, this same reasoning would likewise apply if the regulation's impact was less severe: if the regulation only prohibited what was not a property right in the first place, then the regulation took nothing from the owner. *See* Michael C. Blumm, Lucas*'s Unlikely Legacy: The Rise of Background Principles as Categorical Takings Defenses*, 29 HARV. ENVTL. L. REV. 321, 326 & n.28 (2005) (citing cases).

Background principles qualifying property titles may include not just pre-existing limitations on property use such as those expressed in nuisance law, but also pre-existing authority to regulate property use in the future. When such authority is exercised, the regulator takes nothing from the property owner, because the owner's title was subject to such authority all along.[31] Until the regulator exercises that authority, of course, the property owner is free to use her property as she will, but she does so knowing at least constructively that the day may come when her freedom of use will be limited pursuant to that reserved authority. *Pennsylvania Coal Co. v. Mahon* suggested this theory as well:

> As long recognized, some values are enjoyed under an implied limitation and must yield to the police power. But obviously the implied limitation must have its limits or the contract and due process clauses are gone. One fact for consideration in determining such limits is the extent of the diminution. When it reaches a certain magnitude, in most if not in all cases there must be an exercise of eminent domain and compensation to sustain the act.[32]

This passage says that the reason for considering the magnitude of the regulatory burden is not to decide whether a regulation is functionally equivalent to a physical seizure, but to decide whether the regulation is pursuant to an "implied limitation" or whether it exceeds the limits to that implied limitation. But unlike the nuisance law discussed in *Lucas*, the implied limitation to which *Mahon* refers is not an existing rule of law, but rather a limitation that the police power may in the future further restrain property use to a certain extent.

Other earlier cases likewise expressed this same understanding that the police power is what *Lucas* called a "background principle" qualifying property titles.[33] In *Chicago,*

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31. *See generally* Cordes, *supra* note 16, at 24–26 ("American law has long recognized that private property rights are not absolute and are limited to a certain degree by the broader public interest. It is important to emphasize that this is an inherent limitation in the nature of private property rather than a deprivation of any preexisting rights."); John E. Fee, *The Takings Clause as a Comparative Right*, 76 S. CAL. L. REV. 1003, 1020-21 (2003) ("[A]n owner's title in private property is inherently qualified, from the outset, by the government's power to regulate what is in the public interest.").

32. Pa. Coal Co. v. Mahon, 260 U.S. 393, 413 (1922).

33. *See* Bradley C. Karkkainen, *The Police Power Revisited: Phantom Incorporation and the Roots of the Takings Muddle*, 90 MINN. L. REV. 826, 838–42 (2006) (describing the

B. & Q. R. Co. v. City of Chicago, the Court held that the government did not have to pay compensation for exercising the police power, because "all property . . . is held subject to the authority of the state to regulate its use in such manner as not to unnecessarily endanger the lives and the personal safety of the people," and any property that such regulations damage or injure "is not, within the meaning of the Constitution, taken for public use, nor is the owner deprived of it without due process of law."[34] In *Missouri Pacific Railway Co. v. Nebraska*, the Court held that a regulation exceeded the state's police power and therefore was an unconstitutional taking in violation of the Fourteenth Amendment, explaining that "States have power to modify and cut down property rights to a certain limited extent without compensation, for public purposes, as a necessary incident of government—the police power," but that "there are constitutional limits to what can be required . . . under either the police power or any other ostensible justification for taking such property away."[35] Similarly, the Court in *Block v. Hirsh* said that the police power allows "property rights [to] be cut down, and to that extent taken, without pay" but it is "open to debate . . . whether the statute goes too far. For just as there comes a point at which the police power ceases and leaves only that of eminent domain . . . regulations of the present sort [if] pressed to a certain height might amount to a taking without due process of law."[36]

Courts have recognized similar but narrower governmental powers that inherently limit property titles even though the power may not have been exercised until the landowner sought to use the land in a certain way. *Lucas* itself noted one such power, the federal government's navigational servitude, declaring that "we assuredly would permit the government to assert a permanent easement that was a pre-existing limitation upon the landowner's title."[37] Some courts have likewise held that the public trust

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police power as a background principle and discussing early cases treating police power that way). "History teaches that states have always claimed, as a 'background principle of the state's law of property,' the reserved police power to alter the law of property at the margins for purposes of protecting the public health, safety, morals, and general welfare; and further that under their law of property, all property is always held subject to this inherent limitation." *Id*. at 912.

34. 166 U.S. 226, 252 (1897).

35. 217 U.S. 196, 206 (1910).

36. 256 U.S. 135, 155–56 (1921).

37. *Lucas*, 505 U.S. at 1028–29 (1992) (citing cases); *see also* United States v. Rands, 389 U.S. 121, 123 (1967) ("The proper exercise of [the navigational servitude] is not an invasion of any private property rights in the stream or the lands underlying it, for the damage sustained does not result from taking property from riparian owners within the meaning of the Fifth Amendment but from the lawful exercise of a power to which the

doctrine qualifies property ownership, allowing owners to use their lands as they choose until the government asserts its pre-existing authority.[38]

Bradley Karkkainen has argued that, under the traditional view of the implied police power limitation on property rights, a valid state regulation could never be a compensable taking. If a state regulation was a valid exercise of the police power, that exercise was merely an application of the pre-existing qualification of property rights and therefore took nothing from the owner. If a state regulation was not a valid exercise of the police power, then it was simply void under the Due Process Clause.

Thus a legitimate exercise of the police power could never give rise to a compensable taking, but that did not mean that states had license to run roughshod over property rights. Some actions ostensibly taken pursuant to the police power might not be legitimate exercises of that power. Such actions might be deemed implied exercises of the state's complementary power of eminent domain, compensable under established due process principles; or they might lie beyond any legitimate power of the state, and be held invalid.[39]

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interests of riparian owners have always been subject."); Palm Beach Isles Assocs. v. United States, 208 F.3d 1374, 1384 (Fed. Cir. 2000) ("In light of our understanding of *Lucas* and the other cases we have considered, we hold that the navigational servitude may constitute part of the 'background principles' to which a property owner's rights are subject, and thus may provide the Government with a defense to a takings claim."); United States v. 30.54 Acres of Land, 90 F.3d 790, 795 (3d Cir. 1996) (holding that a ban on the development of a riverside coal loading facility was not a taking because it was an exercise of the federal government's navigational servitude); Donnell v. United States, 834 F. Supp. 19, 26 (D. Me. 1993) (holding that order to remove wharf did not take owner's property because it was subject to "the federal government's control for purposes of navigation and commerce"); Blumm, *supra* note 30, at 329 ("Consequently, most lower court decisions have recognized that background principles include the navigational servitude as well as other federal law limitations on property rights.").

38. *See, e.g.*, Esplanade Props., LLC v. City of Seattle, 307 F.3d 978, 985 (9th Cir. 2002) ("In this case, the 'restrictions that background principles' of Washington law place upon such ownership are found in the public trust doctrine."); McQueen v. South Carolina Coastal Council, 580 S.E.2d 116, 120 (S.C. 2003) ("The tidelands included on McQueen's lots are public trust property subject to control of the State. McQueen's ownership rights do not include the right to backfill or place bulkheads on public trust land and the State need not compensate him for the denial of permits to do what he cannot otherwise do."); Stevens v. City of Cannon Beach, 854 P.2d 449, 456–57 (Ore. 1993) ("We, therefore, hold that the doctrine of custom as applied to public use of Oregon's dry sand areas is one of 'the restrictions that background principles of the State's law of property . . . already place upon land ownership.'"); Orion Corp. v. State, 747 P.2d 1062, 1073 (Wash. 1987) (en banc) (holding that landowner never had the right to dredge and fill tidelands because of public trust doctrine); Blumm, *supra* note 30, at 341–44 (discussing cases holding that governmental actions were not takings because of the public trust).

39. Karkkainen, *supra* note 33, at 842 (footnotes omitted). "Throughout this period, the term "taking" was routinely invoked as a casual synonym for a prohibited "deprivation" of property without due process. But the substantive due process branch of "takings" law did not turn on judicial parsing of "take" or "taking." Instead, the analysis centered on the

Under modern substantive due process doctrine, which generally considers only rationality and not the extent of the regulatory burden, this reasoning would mean that a rational regulation would never be a taking regardless of how great the economic burden on the owner. But that's clearly not the law, not even in *Mahon*. Justice Holmes said that if a regulation goes too far it would require compensation to sustain it[40] – so he contemplated that some regulations would be permissible with compensation but impermissible without compensation. A regulation could be rational but require payment of compensation.

Therefore, the implied limitation cannot simply be that property titles are held subject to the full scope of potential rational police power actions.[41] Justice Holmes in *Mahon* suggested that constitutional protections limit the reserved police power to regulate property: "As long recognized, some values are enjoyed under an implied limitation and must yield to the police power. But obviously the implied limitation must have its limits or the contract and due process clauses are gone."[42] Perhaps people's reasonable expectations about private property and government regulation also qualify and limit the reserved police power.[43] Whatever the source of limitations, the Court's regulatory takings decisions reflect the conclusion that the government has not implicitly reserved the power to regulate property without compensation regardless of the circumstances or the financial impact on the owner. Rather, property titles are held subject to

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extent of the claimant's legitimate property entitlements in light of the state's reserved power to regulate. To delineate that boundary required careful, case-by-case scrutiny of the nature of, and justification for, the governmental action, and whether that action was fairly embraced within the police power." *Id.* at 898; *see also* City of Belleville v. St. Clair Co. Tpk. County, 84 N.E. 1049, 1053 (Ill. 1908) (stating that a use restriction to prevent harm or advance the general welfare is "a regulation and not a taking, an exercise of the police power and not of eminent domain" but "the moment the Legislature passes beyond mere regulation, and attempts to deprive the individual of his property, or of some substantial interest therein, under the pretense of regulation, then the act becomes one of eminent domain").

40. Pa. Coal Co. v. Mahon, 260 U.S. 393, 413 (1922) ("One fact for consideration in determining such limits is the extent of the diminution. When it reaches a certain magnitude, in most if not in all cases there must be an exercise of eminent domain and compensation to sustain the act.").

41. *See* Keystone Bituminous Coal Ass'n v. DeBenedictis, 480 U.S. 470, 491 n.20 (1987) ("The nuisance exception to the taking guarantee is not coterminous with the police power itself." (quoting Penn Central Transp. Co. v. New York, 438 U.S. 104, 145 (1978) (Rehnquist, J., dissenting))); Fee, *supra* note 31, at 1021 ("There is no regulation that could not, in principle, be described as an exercise of inherent sovereign power to protect the public interest.").

42. *Pa. Coal*, 260 U.S. at 413.

43. *See, e.g.*, Palazzolo v. Rhode Island, 533 U.S. 606, 630 (2001) (describing "background principles of law" as "those common, shared understandings of permissible limitations derived from a State's legal tradition").

potential future police power actions that do not go "too far," considering the magnitude of the regulatory burden, the character of the governmental action, and other relevant considerations.[44]

III. STRENGTHS AND WEAKNESSES OF THE FOUR EXPLANATIONS

As the previous section discusses, the Supreme Court's takings opinions express and support all four of these explanations for the magnitude consideration: the practical explanation, the distributional explanation, the functional equivalence explanation, and the implied limitation explanation. Litigants and courts may invoke all four of these explanations. But one reason why regulatory takings arguments and opinions can be so messy is that not only are the relevant considerations vague and imprecise, but the underlying principles are also unclear. One cannot persuasively argue that the economic impact of a particular regulation makes it compensable without some explanation of why.

The four explanations do not always lead to the same conclusion. Some may be more persuasive than others. This section considers how well each of the four explanations explains regulatory takings law and how well each fits with the underlying principle of the Takings Clause.

A. Consistency With the Constitutional Text

One criterion for evaluating and comparing the four explanations is whether they are consistent with the constitutional text. People can debate the relative importance of textual consistency, but regulatory takings doctrine is founded on the constitutional text. At least if all other things are equal, an explanation that is more consistent with the constitutional text would be better than an explanation that is less consistent with the text. The implied limitation explanation generally is more consistent with the constitutional text than the other explanations are.

The practical explanation, that the government simply can't afford to compensate property owners who suffer smaller regulatory takings, is especially unsatisfying theoretically. If

44. *See, e.g.*, *id.* at 627 ("The right to improve property, of course, is subject to the reasonable exercise of state authority . . . . The Takings Clause, however, in certain circumstances allows a landowner to assert that a particular exercise of the State's regulatory power is so unreasonable or onerous as to compel compensation.").

the Constitution requires payment of compensation, it doesn't seem right for courts to disregard that requirement simply because it costs too much. If nothing else, the Constitution should be changed. But perhaps what seems like a practical argument might be understood as an interpretive argument: the Takings Clause surely could not have been intended in a way that would require so much compensation that it would prevent the ordinary business of government from going on. So the Takings Clause can't mean that any time the government takes a discrete property right from an owner, it must pay compensation.

Even this version of the practical explanation is not very helpful, however. The Takings Clause does not include any language suggesting that more severe regulations are compensable but less severe regulations are not, so the most logical conclusion from this interpretive observation would be that regulations were never expected to be compensable takings at all, but only actual seizures of property were. That obviously is not the law today, so this argument does not help much to justify consideration of magnitude, with smaller burdens being non-compensable and larger burdens being compensable.

The distributional explanation, that magnitude is relevant because the larger the regulatory loss the more likely it is to be unfair, is based on the perceived principle of the Takings Clause rather than the text of the clause. The Takings Clause itself doesn't say that takings of property are compensable if and when they are unfairly distributed. It just says takings are compensable. The Supreme Court has discerned that principle from the text.[45] It's unfair to take a person's private property away for the public to use because the public rather than the individual property owner should pay for such a public benefit.

One problem with justifying the magnitude consideration on the basis of perceived principle rather than drawing it from the text is that the principle may be broader than the text.[46] Taking property without compensation may be an instance of unfairly distributing burdens, but that does not mean all unfairly distributed burdens are takings of property. Magnitude may be relevant to determining whether a burden is unfair but not relevant to determining whether a regulation takes property. The distributional explanation explains that magnitude is relevant to determining the distributional fairness of a burden; it doesn't explain how magnitude is relevant to determining whether the burden takes property.

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45. *See supra* part II.B.
46. *See* Durden, *supra,* note 15 at 60–61.

The functional equivalence explanation, unlike the practical and distributional explanations, originates more clearly from the text of the Takings Clause. The text says that the government can take private property for public use only if it gives the owner just compensation. Physical seizures of property for the public to use clearly require compensation. Regulations do not take ownership of property away from the owner and so the text could suggest that no compensation is required for property regulation. But if a regulation is sufficiently like a physical seizure, then it makes sense to treat it the same as a physical seizure and require compensation.

This is not an inevitable conclusion, however. One could also reason that if physical seizures are all that is made compensable by the Takings Clause, then that is all that should be compensated. If regulations are not in fact made compensable by the Takings Clause, but only physical seizures are, then courts should not make up an additional constitutional requirement even if it seems consistent with the principle of the express constitutional requirement.

Furthermore, this theory explains the relevance of magnitude only if the Fifth Amendment uses the word "property" to mean things rather than legal rights in relation to things. If "property" means legal rights in relation to things, then taking away a legal right to use land in a certain way is just as much a taking of property as physically seizing part of the land and it doesn't matter whether the regulation is large or small, like or unlike a physical seizure. But if "property" means the thing itself, then it makes sense that we must consider whether restrictions on a thing are so extensive that the restrictions are nearly like taking the thing away altogether. This is a weakness of this explanation because it is not how we usually think of "property."[47] The Supreme Court has acknowledged that "property" could be read to mean the thing, but doesn't seem to like the idea and has construed it to mean legal rights instead:

> It is conceivable that ["property"] was used in its vulgar and untechnical sense of the physical thing with respect to which the citizen exercises rights recognized by law. On the other hand, it may have been employed in a more accurate sense to denote the group of rights inhering in the citizen's relation to the physical thing, as the right

47. *See, e.g.*, Fee, *supra* note 31, at 1011–12 (citing authorities describing property as rights concerning things).

> to possess, use and dispose of it. In point of fact, the construction given the phrase has been the latter . . . . The constitutional provision is addressed to every sort of interest the citizen may possess.[48]

The implied limitation explanation also originates in the text of the Fifth Amendment but is more consistent with the usual understanding of "property." This explanation is that regulations do take property just as physical seizures do, because they take away legal rights in relation to things. This explanation thus embraces the natural and prevailing legal view of "property." From this perspective, ordinary property regulations aren't compensable not because they do not "take" but because what they take is not "property": property owners hold their titles subject to a reserved power to impose reasonable police power regulations on the use of property. This explanation thus is founded on the constitutional text but avoids interpreting "property" as the thing itself, which creates problems explaining why regulatory burdens are ever takings and which is inconsistent with the Supreme Court's understanding of what "property" means in the Takings Clause.

B. Explaining Differences Between Physical and Regulatory Takings

Because the magnitude consideration is relevant only to regulatory takings and not physical takings, the explanation for the magnitude consideration should also explain why magnitude is relevant to regulations but not physical seizures. If an explanation logically applies to regulatory and physical takings alike, it doesn't explain the actual state of takings law.

The distributional explanation is the weakest of the four explanations at explaining why magnitude matters for regulatory takings but not for physical seizures. The distributional explanation suggests that more extensive or injurious regulations are more likely to be unfair and disproportional and therefore are more likely to be the kind of property intrusions that the Takings Clause was intended to compensate. But physical seizures also could be larger or smaller, well distributed or concentrated on a few property owners. Yet physical seizures are always compensable even if widely distributed and imposed on all

48. United States v. General Motors, 323 U.S. 373, 377–78 (1945); *accord* PruneYard Shopping Ctr. v. Robins, 447 U.S. 74, 82 n.6 (1980).

property owners equally.[49] So this explanation does not explain why magnitude is relevant to regulations but not to physical seizures.

The other explanations, on the other hand, do explain in some way the difference between physical and regulatory takings. The practical explanation is that the Takings Clause cannot be meant to compensate for all regulatory takings of discrete property rights because the business of government could not go on if such compensation was required. That observation is unique to regulatory takings because the business of government involves all sorts of regulations that restrict property. The business of government, at least as we conceive and experience it, does not involve all sorts of uncompensated physical seizures of people's private property. So this explanation is consistent with the difference between regulatory takings and physical seizures.

The functional equivalence explanation also applies to regulatory takings but not physical takings. Under this reasoning, physical seizures are the expressly compensable action referred to by the Takings Clause. So the magnitude of such seizures does not matter. Regulations are not expressly referred to in the text, so the only reason to compensate for regulations is if they are functionally equivalent to physical seizures.[50] We consider the magnitude of such regulations to decide whether they are functionally equivalent.

Finally, the implied limitation explanation also is consistent with the difference between regulatory and physical takings. It begins with the premise that all takings of property rights are included in the Takings Clause. But because the government implicitly reserved a power to regulate property without compensation, most regulations don't take away property rights from owners. On the other hand, the government did not reserve a power to physically seize property without compensation. So the magnitude of a regulation helps determine whether the government acted within the scope of its reserved power when it regulated property, but the magnitude of a physical seizure

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49. *Cf.* Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1027 n.14 (1992) ("But a regulation specifically directed to land use no more acquires immunity by plundering landowners generally than does a law specifically directed at religious practice acquire immunity by prohibiting all religions.").

50. *See* Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 321–22 (2002) ("The text of the Fifth Amendment itself provides a basis for drawing a distinction between physical takings and regulatory takings. Its plain language requires the payment of compensation whenever the government acquires private property for a public purpose, whether the acquisition is the result of a condemnation proceeding or a physical appropriation. But the Constitution contains no comparable reference to regulations that prohibit a property owner from making certain uses of her private property.").

is irrelevant to the determination of whether a physical seizure is compensable.

None of these explanations solves what some might consider a problem, that small physical takings are compensable while much larger regulatory takings might not be. But the implied limitation explanation does explain that this is simply the result of the fact that the Fifth Amendment requires compensation for taken "property," not value. Government regulations may financially hurt people in all sorts of ways, but the clause clearly does not apply to other kinds of financial impacts.

Property may have more market value because the market does not foresee or expect that the government will impose many possible regulations that would be pursuant to the implied limitation. The market is predicting, as it does in other ways as well. But as a result, a regulation may take away a lot of market value that does not actually represent what the owner owned, but rather represents what the owner had been allowed to do and the market anticipated would be continued to allowed to do. Therefore, some regulations take away a lot of value without taking away legal property rights.[51]

C. Explaining Why Large But Not Complete Regulatory Deprivations Can Be Takings

While all but the distributional explanation explain why magnitude matters for regulatory takings but not physical takings, the best explanation of the magnitude consideration should also explain why a regulation can be a taking even if it is not a total deprivation of the property.

One of the theoretical weaknesses of the functional equivalence explanation is that it does not explain why an extensive but not complete deprivation could ever be a taking. Physical takings always are compensable because they completely deprive the owner of a thing in which the owner had property rights. If a regulation likewise completely deprives the owner of the thing, then the regulation is the same and should be compensable. But if the regulation does not completely deprive the owner of

51. *See, e.g.*, Andrus v. Allard, 444 U.S. 51, 66 (1979) ("[A] reduction in the value of property is not necessarily equated with a taking."); Penn Central Transp. Co. v. New York, 438 U.S. 104, 131 (1978) ("[T]he decisions sustaining other land-use regulations, which . . . are reasonably related to the promotion of the general welfare, uniformly reject the proposition that diminution in property value, standing alone, can establish a 'taking . . . .'"); Steven J. Eagle, *"Economic Impact" in Regulatory Takings Law*, 19 HASTINGS W.-N.W. J. ENVTL. L. & POL'Y 407, 434 (2013) ("It is axiomatic in property law that 'value' is not property.").

a thing, but merely impairs the value of the thing by regulating its use, then the owner still has something of value after application of the regulation and the regulation is not equivalent to a physical seizure of the thing. Yet such a regulation may still be a compensable taking even though it is not actually equivalent to the constitutionally compensable action.

One response may be that a regulation may impair the value of property so much that it makes the property practically unusable, and so practically take the property away from the owner even though it still has some value. Justice Holmes suggested this explanation in *Mahon* when he wrote that making it "commercially impracticable" to mine coal has "very nearly the same effect" as taking the coal away.[52]

Even if this gives the magnitude consideration a little bit of flexibility, the functional equivalence explanation unavoidably requires a very severe economic impact in order to logically conclude that the regulation is functionally equivalent to taking the property away from the owner.[53] But this does not sound the same as the *Penn Central* test, because the Court described the magnitude of economic impact as just one consideration in deciding whether justice and fairness require the public rather than the individual owner to bear the regulatory burden.[54] Even in *Lingle*, which seems to emphasize the functional equivalence explanation, the Court still says both "the magnitude or character of the burden" and "how any regulatory burden is distributed" are significant in determining whether a regulation is a taking.[55] To whatever extent that current takings law considers a regulation to be a taking because the regulatory burden is unfairly distributed even though the owner is not deprived of all practical value, the functional equivalence theory does not explain why.

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52. Pa. Coal v. Mahon, 260 U.S. 393, 414 (1922).

53. *See, e.g.*, *Tahoe-Sierra*, 535 U.S. at 322 n. 17 ("When the government condemns or physically appropriates the property, the fact of a taking is typically obvious and undisputed. When, however, the owner contends a taking has occurred because a law or regulation imposes restrictions so severe that they are tantamount to a condemnation or appropriation, the predicate of a taking is not self-evident, and the analysis is more complex."); Rose Acre Farms, Inc. v. United States, 373 F.3d 1177, 1195 (Fed. Cir. 2004) ("[C]ourts have traditionally rejected takings claims in the absence of severe economic deprivation. This hesitation stems from the very nature of a regulatory takings claim."); Daniel L. Siegel, *Evaluating Economic Impact in Regulatory Takings Cases*, 19 HASTINGS W.-N.W. J. ENVTL. L. & POL'Y 373, 377 (2013) ("[F]or an economic impact to be so onerous that it is similar to eliminating a core property interest, the impact has to be huge.").

54. *See* Penn Central Transp. Co. v. New York, 438 U.S. 104, 123–24 (1978).

55. Lingle v. Chevron U.S.A. Inc., 544 U.S. 528, 542–43 (2005) ("A test that tells us nothing about the actual burden imposed on property rights, or how that burden is allocated, cannot tell us when justice might require that the burden be spread among taxpayers through the payment of compensation.").

One might think that the distributional explanation explains the relevance of distribution, and so these two explanations work together to account for the current state of takings law. But they do not really work together like that. The functional equivalence explanation alone can justify only the conclusion that a regulation is compensable if it makes property practically useless. It does not explain why the distribution is relevant or why it might make a regulation compensable even if the economic impact was not like a physical seizure. It adds nothing to the distributional explanation's ability to account for these aspects of regulatory takings law. The distributional explanation, on the other hand, also justifies finding complete regulatory deprivations to be compensable, because, as the Court suggested in *Lucas*, such complete deprivations are inevitably unfairly distributed.[56] The distributional explanation also justifies finding less severe regulations to be compensable because of their unfair distribution. So the functional equivalence explanation does not account for this aspect of regulatory takings law, but the distributional explanation does.

The other two explanations likewise explain why a regulation may be compensable even if it doesn't practically deprive the owner of all value. As the Court said in *Lucas*, the practical explanation suggests that the government cannot afford to compensate for more common, less severe regulations, but the government can afford to compensate for the "relatively rare situations" in which regulation deprives the owner of all value.[57]

The implied limitation explanation also explains why a lesser deprivation could still be a compensable taking. From this perspective, the magnitude of a regulation is just one of the considerations in deciding whether a particular regulation is an exercise of the implied reserved police power or whether it goes too far and takes property from the owner. So a less severe regulation may still exceed the scope of the reserved power if it is unfairly imposed on an owner.

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56. *See* Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1017–18 (1992) ("Surely, at least, in the extraordinary circumstance when no productive or economically beneficial use of land is permitted, it is less realistic to indulge our usual assumption that the legislature is simply 'adjusting the benefits and burdens of economic life' in a manner that secures an 'average reciprocity of advantage' to everyone concerned."). However, the Court noted that even if the burden were widespread, a complete deprivation of economically beneficial use would still be a taking. *See id.* at 1027 n.14 ("But a regulation specifically directed to land use no more acquires immunity by plundering landowners generally than does a law specifically directed at religious practice acquire immunity by prohibiting all religions.").

57. *See id.* at 1018.

D. Explaining Why the Duration of a Regulation Matters

Another distinction between physical seizures and regulatory takings is that a physical seizure of private property is a compensable taking regardless of how long it lasts, while even a regulation that denies all economically beneficial use may not be a taking if it is temporary. In *Tahoe-Sierra*, the Court reasoned that judging a regulation's magnitude requires considering both how much it restricts and how long it restricts the property.[58] The best explanation of the magnitude consideration in current regulatory takings law should also explain why the duration of the regulation matters.

The functional equivalence explanation does not explain why the duration of a regulation matters. In fact, the functional equivalence perspective suggests the opposite conclusion. From this perspective, a regulation should be compensable if it has the same effect as a physical seizure that clearly is compensable. A physical seizure is compensable regardless of how long it lasts; the duration only affects the measurement of just compensation.[59] A regulation that denies all economically viable use of the land for a time is functionally identical to a temporary physical seizure, and therefore should also be compensable. The duration would be relevant only to measuring just compensation. Of course, if the temporary denial of use is an exercise of a reserved power or background principle, it may not be compensable. But the functional equivalence doctrine itself doesn't explain why the duration of a regulation would generally be relevant to deciding whether a regulation is a compensable taking.

Chief Justice Rehnquist's dissent in *Tahoe-Sierra* recognized this implication of the functional equivalence explanation, arguing that just as a permanent deprivation of beneficial use is the functional equivalent of a physical appropriation, "a 'temporary' ban on all economic use is a forced leasehold."[60] But his argument lost. In disagreeing with his dissent, the majority opinion suggested that the functional equivalence explanation doesn't completely explain the law of regulatory takings. The Court acknowledged that "even a regulation that constitutes only a minor infringement on property may, from the landowner's

58. *See* Tahoe-Sierra Pres. Council, Inc. v. Tahoe Reg'l Planning Agency, 535 U.S. 302, 342 (2002) ("[T]he duration of the restriction is one of the important factors that a court must consider in the appraisal of a regulatory takings claim . . . .").

59. *See, e.g.*, First English Evangelical Lutheran Church v. County of Los Angeles, 482 U.S. 304, 318 (1987) (citing and discussing cases).

60. *See Tahoe-Sierra*, 535 U.S. at 348 (Rehnquist, J., dissenting).

perspective, be the functional equivalent of an appropriation."[61] But the Court said the dissent's reasoning "stretches *Lucas'* 'equivalence' language too far."[62] According to the Court, *Lucas* created a "narrow exception to the rules governing regulatory takings" which was "only partially justified based on the 'equivalence' theory."[63] The Court noted that *Lucas* also described the distributional explanation and the practical explanation in support of its rule; the Court then said those explanations suggest that a temporary moratorium should not be compensable.[64] Even though *Tahoe-Sierra* doesn't reject the functional equivalence explanation, it thus suggests that the functional equivalence explanation alone cannot explain all the rules of regulatory takings and that other perspectives are necessary for some aspects of regulatory takings law, including the relevance of duration.

As the Court in *Tahoe-Sierra* argued, the distributional explanation does suggest that the duration of a regulation may be relevant to determining whether a regulation is a taking.[65] A temporary prohibition on development, like the moratoria in that case, is less likely to impose unfair burdens on individual landowners "because it protects the interests of all affected landowners against immediate construction that might be inconsistent with the provisions of the plan that is ultimately adopted."[66] So although a moratorium imposes a burden on an affected landowner, it also provides a substantial benefit by imposing the burden on others and by preserving the land pending resolution of the regulatory issues.

The Court also indicated that the practical explanation suggests a reason why duration is relevant: governments could not afford to pay compensation to every restrained landowner every time they need to delay development temporarily while making regulatory decisions. The Court wrote that the likely result is that "the financial constraints of compensating property owners during a moratorium may force officials to rush through the planning process or to abandon the practice altogether."[67] The Court likewise noted that requiring compensation for other kinds of temporary restraints on property "would render routine

61. *Id.* at 324 n.19.
62. *Id.*
63. *Id.*
64. *Id.*
65. *Id.*
66. *Id.* at 341.
67. *Id.* at 339.

government processes prohibitively expensive or encourage hasty decisionmaking."[68]

Finally, the implied limitation explanation also is consistent with the consideration of duration. From this perspective, the question is whether the regulation is an exercise of a power reserved by the government or whether it takes away a private property right. The government's reserved power to regulate land use logically includes some power to prohibit land use while the government decides how to regulate the land. The Court in *Agins v. City of Tiburon* thus recognized that "[m]ere fluctuations in value during the process of governmental decision making, absent extraordinary delay, are 'incidents of ownership,'" not compensable takings.[69] In *First English Evangelical Lutheran Church v. County of Los Angeles*, the Court likewise seemed to recognize that the government has some implied reserved power to prohibit land use while making regulatory decisions, holding that "where the government's activities have already worked a taking of all use of property, no subsequent action by the government can relieve it of the duty to provide compensation for the period during which the taking was effective," but noting that the question would be "quite different . . . in the case of normal delays in obtaining building permits, changes in zoning ordinances, variances, and the like."[70]

The implied limitation explanation suggests that duration is relevant not because duration is part of the formula for determining the overall economic impact on the owner – the point that *Tahoe-Sierra* emphasizes – but because a normal delay to make regulatory decisions is part of the government's reserved power to which all private property is subject. From this perspective, courts should consider not just how long a regulatory restraint lasted, but the reason for the restraint. If it was a reasonable moratorium or a normal decision-making delay, then the court would hold that the government took nothing from the owner but merely exercised its reserved power.

E. Considerations of Fairness and Justice

The preceding subsections consider how well each of the four explanations fits with the text of the Fifth Amendment and with

68. *Id.* at 335.

69. 447 U.S. 255, 263 n.9 (1980) (quoting Danforth v. United States, 308 U.S. 271, 285 (1939)).

70. 482 U.S. 304, 321 (1987).

the characteristics of regulatory takings that distinguish them from physical seizures. The most useful and correct explanation for considering the magnitude of economic impact should also explain how the magnitude is relevant to the underlying principle of the Takings Clause.

The Supreme Court has long stressed that the Takings Clause "was designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole."[71] The Court in *Penn Central* began its statement of regulatory takings law by explaining that a court's objective is to determine when "'justice and fairness' require that economic injuries caused by public action be compensated by the government, rather than remain disproportionately concentrated on a few persons."[72] The "factors that have particular significance" that the Court proceeded to identify, including the economic impact of the regulation, are factors to help answer this basic question of justice and fairness.[73] In subsequent opinions, the Court further indicated that its ultimate objective is to determine from all the relevant facts whether fairness and justice require the public to bear the burden.[74] In *Lingle*, the Court reaffirmed both the principle and the factual considerations expressed in *Penn Central*, noting that "[w]hile scholars have offered various justifications for this regime, we have emphasized its role in 'bar[ring] Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.'"[75] This principle of fairness does not fully explain modern takings law, because it does not explain why physical seizures are always compensable but regulatory invasions may not be. A regulatory

71. Armstrong v. United States, 364 U.S. 40, 49 (1960); *see also* Andrus v. Allard, 444 U.S. 51, 65 (1979) ("The Takings Clause, therefore, preserves governmental power to regulate, subject only to the dictates of 'justice and fairness.'"); Monongahela Navigation Co. v. United States, 148 US. 312, 325 (1893) ("[The Takings Clause] prevents the public from loading upon one individual more than his just share of the burdens of government, and says that when he surrenders to the public something more and different from that which is exacted from other members of the public, a full and just equivalent shall be returned to him."); Durden, *supra* note 15, at 44–45 (citing cases and commentary affirming and defending the *Armstrong* principle); *supra* part II.B.

72. Penn Central Transp. Co. v. City of New York, 438 U.S. 104, 124 (1978).

73. *See id.*

74. *See, e.g.*, Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency, 535 U.S. 302, 334 (2002) ("[T]he ultimate constitutional question is whether the concepts of 'fairness and justice' that underlie the Takings Clause will be better served by one of these categorical rules or by a *Penn Central* inquiry into all of the relevant circumstances in particular cases."); Palazzolo v. Rhode Island, 533 U.S. 606, 617–18 (2001) ("These inquiries are informed by the purpose of the Takings Clause, which is to prevent the government from 'forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.'").

75. Lingle v. Chevron U.S.A. Inc. , 544 U.S. 528, 537 (2005).

invasion could be more unfair in magnitude and distribution than a physical seizure, yet the physical seizure is always compensable while the regulation may not be.[76] Still, regulations generally are more widespread than physical seizures. To the extent fairness is consistency or equality of treatment, a regulation is more likely to be fair.[77] In any event, the Supreme Court has emphasized the fairness principle in regulatory takings law, regardless of whether it fully explains the law concerning just compensation for physical seizures.

As the Court suggested in *Penn Central*, the magnitude of the economic impact should somehow help determine whether it is fair to let a few people bear the burden or whether the public as a whole should bear the burden. That is the distributional explanation for the magnitude consideration—that the larger the regulatory burden, the more disproportional and therefore the more that fairness requires the public to bear the burden. This is the great theoretical strength of the distributional explanation: it focuses attention directly on how the magnitude of the regulatory burden relates to the primary principle of the Takings Clause, as expressed by the Supreme Court.[78] A court evaluating the magnitude of the regulatory burden from this perspective would not focus separately on magnitude and distribution as if they are two independent variables, but rather would consider the magnitude to help decide whether the burden is fundamentally fair.

This is also a practical strength of the distributional explanation. Compare this perspective to the functional equivalence explanation. The functional equivalence explanation is not incompatible with the fairness principle the Court has expressed, but rather than directly asking whether a regulation is so large that it is unfair, the functional equivalence explanation asks whether a regulation is so large that it is like a physical seizure, and the implication in the background is that a physical seizure or a regulation that is like a physical seizure is unfair if uncompensated. The result is that, logically at least, from the functional equivalence approach the magnitude of the economic impact must be so great that it makes the property practically useless, and the distribution of the burden is relatively

76. *See* Andrea L. Peterson, *The False Dichotomy Between Physical and Regulatory Takings Analysis: A Critique of Tahoe-Sierra's Distinction Between Physical and Regulatory Takings*, 34 ECOLOGY L.Q. 381, 393–94 (2007).

77. *See id.* at 401.

78. Of course, if the Supreme Court has erred in expressing the principle of the Takings Clause, this explanation of the magnitude consideration perpetuates the error. *See generally* Durden, *supra* note 15 (critiquing the *Armstrong* principle and its application).

insignificant: the regulation either is or is not tantamount to a physical seizure, whether a few or many people are made to suffer such a burden.

But as the Court has said, both the magnitude and the distribution are important to this determination. From a functional equivalence perspective, a court has no real benchmark against which to compare the magnitude of regulations that are not complete takings of value. All the court can say is that the regulation imposes a very large burden, and therefore it is more like a taking than a regulation that imposes a smaller burden. But how alike is enough? From the distributional fairness perspective, on the other hand, the court has a clearer principle to apply. The court tries to decide whether the burden, in light of both its size and its distribution, is unusual or unfair, or whether it is similar to other types of burdens that other landowners commonly bear, and therefore is simply part of adjusting the benefits and burdens of economic life. The standard is still imprecise, of course, but that is the nature of the standard, regardless of the explanation for it. At least from the distributional perspective, the court has some principle to help evaluate the significance of the magnitude when it is less than a total deprivation.

Like the functional equivalence explanation, the practical explanation doesn't directly consider whether the economic impact of a regulation is unfair; it considers whether the economic impact is too large to pay for. The government's practical ability to pay compensation depends both on the magnitude of the economic impact and how many people are affected. Total deprivations of value have the greatest magnitude but they are rare, so the government can afford to pay compensation when they occur. The Court offered this explanation in *Lucas*:

> [T]he *functional* basis for permitting the government, by regulation, to affect property values without compensation—that "Government hardly could go on if to some extent values incident to property could not be diminished without paying for every such change in the general law"—does not apply to the relatively rare situations where the government has deprived a landowner of all economically beneficial uses.[79]

79. Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1018 (1992) (citation omitted).

This practical explanation of the magnitude requirement therefore naturally involves consideration of the distribution of the burden as well as the magnitude of the burden, even though the explicit reason for considering the magnitude is not to evaluate the fairness of the burden but to consider the government's ability to pay.

The practical explanation may go too far in emphasizing distribution rather than magnitude. In fact, this explanation is not concerned so much with the fairness of the distribution as it is with simply the number of people who bear the regulatory burden, because the more people burdened, the greater the expense to compensate them. From this perspective, the regulation most likely to be compensable is a regulation that affects only a few people and also has a relatively small economic impact: that would be the cheapest for the government to compensate. And the least likely to be compensable is a regulation that has a very large economic impact and is very widespread, because that would cost the most. The explanation does not offer a consistent principle to differentiate compensable from non-compensable regulations, because if the very same onerous regulation affected only a few people the government could compensate, but if the regulation simply was expanded to burden many or most people, then it would become non-compensable under this reasoning, because the government simply could not afford it. There must be some other explanation that does not depend entirely on the government's own appetite for regulation.

Finally, the implied limitation explanation, like the distributional explanation, also explains how magnitude is relevant to the underlying principle of the Takings Clause. From the implied limitation perspective, both the magnitude and the distribution help determine whether a particular regulation is a reasonable exercise of the government's police power or whether it goes beyond that reserved power to take property away without compensation. This theory poses the relevant question directly: is the regulation the sort of limitation that property owners generally should be subject to as members of an ordered society, even though the burden is not universal, or has the government restrained private land use so much that it should pay compensation? The scope of the reserved police power, which itself may change over time, determines whether a regulation is compensable or not. As Bradley Karkkainen argued:

> [T]he solution must come from an inquiry into the nature and limits of private property rights in a

> democratic society, and the nature and limits of the states' concomitant power, on behalf of the demos, to define and adjust the legal boundaries determining the specific content of those rights. That discussion, predicated upon the understanding that the law of property—like any foundational social institution—must be dynamic and malleable to adapt to changing social needs, is one in which substantive-due-process-era courts and commentators constructively engaged through their discourse on the police power and its limits. It is a discourse that in the post-Penn Central era we have abandoned, to the impoverishment of property jurisprudence.[80]

IV. ADVANTAGES OF THE IMPLIED LIMITATION EXPLANATION

As Part III demonstrates, the implied limitation explanation best fits with today's regulatory takings law and the underlying principle of the Takings Clause. This explanation also has some other theoretical and practical advantages over the other explanations. This section discusses these advantages.

A. Consistency With Text, Principle, and Current Regulatory Takings Law

The greatest advantage of the implied limitation explanation is that it is most consistent with the text and principle of the Takings Clause and best explains the rules of regulatory takings.

As I discuss in part III.A, the text of the Takings Clause does not express either the practical explanation or the distributional explanation. The functional equivalence explanation is more consistent with the text, but only if "property" is read to refer to things themselves rather than legal rights in relation to things. Even then, the logic of the functional equivalence explanation necessarily means that the Takings Clause itself does not require compensation for regulations, but that courts require compensation because regulations may be sufficiently like the actions for which the text of the Takings Clause does require compensation. The implied limitation explanation is most consistent with the text. From this perspective, the Takings Clause expressly prohibits taking legal rights in relation to things, described as "property." But most land use regulations simply

80. Karkkainen, *supra* note 33, at 832.

do not take away any legal rights because the regulations are exercises of a pre-existing limitation on the property owner's title.

As I discuss in the rest of part III, the implied limitation explanation explains why the magnitude of the economic burden is relevant to regulatory takings but not physical seizures, why large but not complete regulatory deprivations may be compensable, why the duration of a regulation matters but the duration of a physical seizure does not matter, and how magnitude relates to the underlying principle of the Takings Clause, to avoid unfairly imposing burdens on individuals rather than the public as a whole. The other explanations, on the other hand, all have some weakness in explaining these aspects of regulatory takings law. The distributional explanation does not explain why the magnitude of the economic burden is relevant to regulatory takings but not physical seizures. Besides being theoretically weak and unconnected to the text of the Takings Clause, the practical explanation does not explain how the distribution of the burden is relevant to compensability, in fact suggesting the opposite, that the more widely distributed the burden, the less likely the government can afford to pay compensation. And the functional equivalence explanation over-emphasizes the magnitude of the economic burden because it does not explain the relevance of the distribution of the burden or why any regulation that does not completely deprive the owner of beneficial use should be compensable. It also does not explain why the duration of a regulation is relevant to the determination of whether the regulation is a taking; in fact, it suggests that the duration should not be relevant.

B. Completeness

The implied limitation explanation thus is unique in that it can fully and independently account for both positive and negative outcomes – decisions that regulations are compensable as well as decisions that regulations are not compensable. If a regulation is an exercise of the reserved power, it is not compensable. If a regulation is not an exercise of the reserved power, it is compensable.

That is not true for the other theories. If a regulation is functionally equivalent to a physical seizure, it is a taking. But even if it is not functionally equivalent, it may still be a taking because of the character of the action and the distribution of the burden. Similarly, if a regulation is unfairly distributed, it is a taking. But even if a regulation is fairly distributed, it may still be

a taking, such as when the regulation takes all economically beneficial use or involves a physical intrusion. The practical impossibility of compensating all regulatory takings may explain both positive and negative outcomes in a way – if we can afford it, we will compensate; if we cannot, we will not. But that's not much of a standard.

C. Clarity and Certainty

The implied limitation explanation may feel too vague and indefinite. How does a property owner know what the "implied limitations" are, when it is not an existing rule but rather the possibility of new future rules? In *Village of Euclid v. Ambler Realty Co.*, the Supreme Court acknowledged the indefiniteness of the scope of the police power: "The line which in this field separates the illegitimate assumption of power is not capable of precise delimitation. It varies with circumstances and conditions."[81]

This is a problem, but it is a problem regardless of the explanation for the relevance of magnitude. As *Mahon* suggests, the ad hoc regulatory taking factors are just as much guidance in deciding whether a regulation is pursuant to this implied limitation or whether it does actually go beyond that implied limitation to take something from the owner.

Despite the unavoidable uncertainty of what government actions are pursuant to the implied limitation, the implied limitation explanation at least eliminates some avoidable uncertainties. It eliminates the need to wrestle with whether a regulation is like a physical seizure. The functional equivalence explanation may cause courts to wrestle with categorization and magnitude issues when the problem is not really magnitude at all. From the implied limitation perspective, cases like *Loretto v. Teleprompter Manhattan CATV Corp.*[82] can more directly address the real issue – whether the regulation goes too far, beyond the implied limitation on property rights, rather than how much it is like a physical seizure.

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81. 272 U.S. 365, 387 (1926); s*ee also* Karkkainen, *supra* note 33, at 893–94 ("More worryingly, indeterminacy left legislatures and property owners with ex ante uncertainty as to the ultimate scope of property rights and the constitutionally permissible bounds of the state's reserved power to regulate. Legal uncertainty invited litigation, and left discretionary power in the hands of judges to determine—on a case-by-case basis, without the aid of clear rules or guiding principles—when a regulation 'went too far' and overstepped the bounds.").

82. 458 U.S. 419 (1982) (holding that law requiring landlord to permit installation of cables was a compensable taking because it was a permanent physical occupation of landlord's property).

The implied limitation explanation, as well as the distributional explanation, also helps counter a possible post-*Lingle* tendency to think just about the magnitude of the loss. The question isn't so much the extent of the market value loss but whether the regulation was a fair exercise of the police power pursuant to the implied limitation. That may help us remember, as *Penn Central* tried to indicate, that the character of the regulation is as important as the extent of the regulation.

D. Burden of Proof

Another practical implication of the implied limitation exception, which some might see as a strength and others as a weakness, is that the government bears the burden of proof, rather than the landowner. Under *Lucas*, background principles are an affirmative defense to takings liability.[83] The landowner need only prove that the government action took property. "This makes sense because it would be intellectually awkward, perhaps impossible, for the claimant to prove the absence of use-limiting background principles."[84] The government then may undertake to prove that the regulation actually took nothing from the owner because it was an exercise of a pre-existing limitation on the owner's title.

E. State Law Defines Property

Another advantage of the implied limitation explanation is that it relies on state law to determine what property is, as state law generally does in our legal system,[85] rather than being subject to loose federal judicial creations about how much of a regulatory burden is too much. As the Court said in *Board of Regents v. Roth*, "Property interests . . . are not created by the Constitution. Rather,

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83. *See* Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1031–32 (1992) ("We emphasize that to win its case South Carolina must do more than proffer the legislature's declaration that the uses Lucas desires are inconsistent with the public interest, or the conclusory assertion that they violate a common-law maxim . . . . Instead, . . . South Carolina must identify background principles of nuisance and property law that prohibit the uses he now intends in the circumstances in which the property is presently found.").

84. Blumm, *supra* note 30, at 326–27.

85. *See, e.g.*, Stop the Beach Renourishment, Inc. v. Florida Dep't of Envtl. Protection, 560 U.S. 702, 707 (2010) ("Generally speaking, state law defines property interests."); Stephanie Stern, *Protecting Property Through Politics: State Legislative Checks and Judicial Takings*, 97 MINN. L. REV. 2176, 2238 (2013) ("Property law varies significantly across the states based on differences in politics, natural resources, culture, fiscal conditions, and state-specific historical understandings of public versus private rights. Not only does state law create the baseline of property rights, it is also necessary to determine the degree of change from the baseline that is acceptable . . . .").

they are created and their dimensions are defined by existing rules or understandings that stem from an independent source such as state law . . . ."[86] Yet, the prevailing takings approach does not rely on state law to determine whether property has been taken. State law may be consulted to determine whether a thing is property, but the decision whether it has been taken involves a federal law consideration of the magnitude of the loss. The implied limitation explanation instead considers state law in the magnitude determination as well. State law determines whether a regulation is pursuant to the reserved regulatory power. This approach is thus more faithful to the federalism principle that states may not just define property rights initially, but may continue to adjust such rights over time.[87]

F. Irrational Regulations Are Takings

Another noteworthy implication of the implied limitation perspective may also be viewed as a strength or a weakness. If some land use regulations are not takings only because they are exercises of a reserved police power that qualifies all land titles, then whenever a regulation is not an exercise of such a power, but nevertheless takes away a recognized property right, it will be a taking. An irrational or arbitrary regulation is not an exercise of the police power. So if a regulation is arbitrary or irrational, and yet is applied to property and deprives the owner of some property right she would otherwise have, then the regulation has taken her property and the government must compensate her.[88]

The Court in *Lucas* suggested this conclusion when it said that "*any* regulatory diminution in value" requires compensation unless it has a "police power justification."[89] That may sound inconsistent with *Lingle*, however, which held that a regulation is not a taking simply because it does not substantially advance a legitimate state

86. 408 U.S. 564, 577 (1972); *see also* Davies Warehouse Co. v. Bowles, 321 U.S. 144, 155 (1944) ("The great body of law in this country which controls acquisition, transmission, and transfer of property, and defines the rights of its owners in relation to the state or to private parties, is found in the statutes and decisions of the state.").

87. *See* Karkkainen, *supra* note 33, at 834 ("An owner's property rights thus ordinarily extend only as far as state property law says they do, and under federalism principles, states have considerable discretion not only to determine the primary rules of property in the first instance, but also to make necessary adjustments over time through legislative enactments and evolving judicial doctrines, just as they adjust their laws of tort or contract.").

88. I made this argument at greater length in an earlier article. *See* Alan Romero, *Ends and Means in Takings Law After* Lingle v. Chevron, 23 J. LAND USE & ENVTL. L. 333, 355-60 (2008).

89. Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1026 (1992).

interest. It does not directly conflict with the reasoning of *Lingle*, however. *Lingle* held that the substantial advancement test isn't a "freestanding takings test," perhaps even with its own different level of scrutiny.[90] The implied limitation argument is not that the Takings Clause itself requires compensation if a regulation doesn't substantially advance a legitimate state interest. Rather, the argument is still a substantive due process argument: if a regulation is irrational or arbitrary–if it does not rationally advance a legitimate state interest–then it is a violation of substantive due process and not a proper exercise of the police power. But the implied limitation argument points out that if a regulation is not a proper exercise of the police power, that means that it was not just implementing a pre-existing limitation on property titles, but it really did take away some of the owner's property rights without compensation.

Some would say this is a weakness, because it would have some of the same effects as the rejected independent takings test of substantial advancement. Others, including me, would say it is a strength, because if the Court in *Lingle* meant to go further than rejecting an independent takings test, it shouldn't have. The implied limitation argument resolves the Court's concerns that an independent takings test is inconsistent with takings doctrine and that practically it might invoke more extensive scrutiny of the rationality of regulations. The implied limitation explanation resolves those concerns because it does not suggest an independent test, but merely an implication of a regulation that violates substantive due process.

V. CONCLUSION

All four explanations are valid descriptively, in that the Supreme Court has expressed all four principles explaining or justifying regulatory takings analysis and decisions. Each of them may be a persuasive explanation in some situations. Certainly the advocate should consider all four explanations in making arguments about the magnitude of regulatory burdens.

Maybe that contributes to the perceived messiness or confusion of regulatory takings law.[91] Courts consider several different principles rather than just one principle in evaluating the relevant factual considerations. If so, regulatory takings law may be clearer by being more explicit about the influence of these perspectives. Courts can and should address how each of these perspectives may

90. Lingle v. Chevron U.S.A., 544 U.S. 528, 540 (2005).
91. *See, e.g.*, Durden, *supra* note 15, at 28.

influence the judgment about whether the regulation goes too far and should result in compensation. That would help clarify the court's reasoning and give more guidance to future litigants.

I think that courts should pay more attention to the implied reserved police power perspective, however. It is rarely considered except in evaluating whether background principles already prohibited the desired uses. Yet it gives the fullest and best account of why magnitude matters. The functional equivalence argument explains why a total or nearly total regulatory taking should be compensable, but does not explain why a regulation with less economic impact may still be a taking. The distributional fairness argument does not explain why a total or near total regulatory taking should be compensable even if it were widely and rationally distributed. The practical explanation does not explain why the distribution of the regulatory burden matters, if anything suggesting that the more widely distributed the burden, the less likely to be compensable because the government cannot afford to pay the bill. The implied limitation explanation, on the other hand, explains the relevance of both variables and integrates them in a single approach. Property titles are subject to ordinary, reasonable exercises of the police power regulating the property. The government can choose to exercise that power in some ways but not in other ways, resulting in unequal distribution of regulatory burdens. But property titles are not subject to extraordinary exercises of the power that are unusually large, unusually rare, or that would swallow up due process, contract, or takings protections of the Constitution.

If nothing else, the implied limitation explanation would better focus our attention on the ultimate and unavoidably difficult and complex question, whether ownership of property in our legal system should be qualified by such an exercise of public power or whether it goes too far and the public should bear the burden of accomplishing that regulatory purpose in that particular way.

TSCA REFORM AND THE NEED TO PRESERVE STATE CHEMICAL SAFETY LAWS

CHRIS HASTINGS*

I. INTRODUCTION

The United States Congress is considering a reform to the Toxic Substances Control Act, under which the United States Environmental Protection Agency (EPA) has not issued a rule since the 90s, with three bills currently in the committee stage. Scholars agree that a federal reform needs to be made. The issue actually crosses political boundaries, as well, which is why two bills have bipartisan support. However, any reform to the Act will need to account for state-level regulation that has filled the regulatory void by either preempting state law or by co-regulating with it. The first bill to be introduced, the Safe Chemicals Act, would preserve state laws unless there is an actual conflict. Two of the bills, The Chemical Safety Improvement Act and its Senate counterpart, would invalidate states' preexisting rules for certain chemicals once EPA issues a rule for that chemical (regardless of whether the rules actually conflict). Additionally, once EPA prioritizes a chemical for analysis, a state would be forbidden from promulgating a new rule for that chemical. This Note advocates against the preemption of state laws because some states have a history and tradition of regulating toxic substances to protect

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children and pregnant women. Additionally, The Chemical Safety Improvement Act does not have sufficient safeguards for children and pregnant women because it does not require EPA to undertake a cumulative effects analysis. Due to the localized nature of some toxic chemical health effects, a state-federal cooperative regulatory system is best suited to protect the public health.

II. TOXIC CHEMICAL SAFETY REFORM

The Toxic Substances Control Act[1] ("TSCA") was originally passed in 1976 to regulate the manufacture, use, and sale of toxic substances.[2] Before the legislation was passed, toxic substances were only regulated by remedying the after-the-fact harm.[3] TSCA, on the other hand—by requiring testing on some chemicals before they were manufactured, used, or sold—anticipated and addressed health concerns over toxic chemicals beforehand. Both environmental groups and industries have advocated for a reform to TSCA, a statute which has remained unchanged since its initial passage.[4] Specifically, there have been four difficulties in implementing TSCA that have led to a need for reform: "(1) prioritizing chemicals of concern; (2) establishing a minimum chemical data set for new and existing chemicals; (3) providing access to chemical information; and (4) taking appropriate and timely action on chemicals."[5] Moreover, while environmentalists have criticized TSCA for its lack of "sufficiently stringent standards to ensure chemicals are safe before they enter the marketplace," industry advocates would prefer a reform that "focus[es] on improving consumer confidence and simplif[ies] toxics regulation."[6]

The Fifth Circuit's invalidation of EPA's regulation of asbestos under Section 6 of TSCA, despite ten years' worth of studies and

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1. Toxic Substances Control Act, Pub. L. No. 94–469, 90 Stat. 2003 (1976) (codified at 15 U.S.C. §§ 2601–2692 (2012)).

2. David L. Markell, *An Overview of TSCA, Its History and Key Underlying Assumptions, and Its Place in Environmental Regulation*, 32 WASH. U. J.L. & POL'Y 333, 336 (2010); *see* S. Rep. No. 698, 94th Cong., 2d Sess. (1976).

3. Markell, *supra* note 2, at 344.

4. *Vitter Eyes Piecemeal TSCA Reform to Counter Democrats' Overhaul Bill*, INSIDE EPA (Feb. 20, 2013), http://insideepa.com/Inside-EPA-General/Public-Content-ACC/vitter-eyes-piecemeal-TSCA-reform-to-counter-democrats-overhaul-bill/menu-id-1026.html [hereinafter INSIDE EPA].

5. Jessica N. Schifano, Ken Geiser, & Joel A. Tickner, *The Importance of Implementation in Rethinking Chemicals Management Policies: The Toxic Substances Control Act*, 41 ENVTL. L. REP. NEWS & ANALYSIS 10527, 10528–29 (2011).

6. INSIDE EPA, *supra* note 4*; see also TSCA Modernization*, AM. CHEMISTRY COUNCIL, http://www.americanchemistry.com/Policy/Chemical-Safety/TSCA (last visited Mar. 14, 2014) (supporting reformation of toxics regulation due in part to the "fractured and contradictory" regulatory landscape created from state regulations).

findings, bolstered criticism of the existing regulatory scheme.[7] In *Corrosion Proof Fittings*, the EPA "reviewed over one hundred studies of asbestos and conducted several public meetings" and "concluded that asbestos [was] a potential carcinogen at all levels of exposure"; therefore asbestos posed an unreasonable risk to human health at all levels of exposure.[8] The EPA's final rule "prohibit[ed] the manufacture, importation, processing, and distribution in commerce of most asbestos-containing products."[9] The EPA used a cost-benefit approach, finding that its regulation would have the benefit of saving 202 or 148 lives (depending on how benefits are calculated) at the cost of approximately $450 million to $800 million.[10]

The asbestos rule was challenged for exceeding statutory authority, and it was subsequently invalidated because the EPA did not have a reasonable basis for banning asbestos based on the available evidence in light of its statutory requirement to impose the "least burdensome, reasonable regulation required . . . ."[11] The court reasoned that a complete ban on manufacturing was the *most* burdensome regulation and therefore could not be the *least* burdensome.[12] The court, while stating that the EPA need not strictly rely on cost-benefit findings, found that the EPA acted unreasonably by failing to consider whether it could reach a comparable benefit (lives saved) at a lower cost (manufacture restrictions short of a complete ban). Since the decision in *Corrosion Proof Fittings*, the EPA never again regulated toxic substances under TSCA.[13] Additionally, due to federal inaction, many states have adopted their own protective regulations, particularly for children and pregnant women.[14]

The late Senator Frank Lautenberg (D-N.J.) initially introduced a bill called the "Safe Chemicals Act,"[15] which was a broader approach to TSCA reform favored by Democrats and environmentalists.[16] The Safe Chemicals Act would preserve all

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7. Granta Y. Nakayama, Corrosion Proof Fittings v. EPA*: No Death Penalty for Asbestos Under TSCA*, 1 GEO. MASON INDEP. L. REV. 99, 100 (1992).

8. Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1207 (5th Cir. 1991).

9. *Id.* at 1207-08.

10. *Id.* at 1208.

11. *Id.* at 1215.

12. *Id.* at 1216.

13. Noah M. Sachs, *Jumping the Pond: Transnational Law and the Future of Chemical Regulation*, 62 VAND. L. REV. 1817, 1830 (2009).

14. Letter from Kamala D. Harris et al., California Attorney General, to Sen. Barbara Boxer, Chairwoman, Subcomm. on Env't & Pub. Works. (July 31, 2013) (on file with author), *available at* http://oag.ca.gov/system/files/attachments/press_releases/TSCA%20Multistate%20Letter%20_FINAL_.pdf.

15. Safe Chemicals Act of 2013, S. 696, 113th Cong. (2013).

16. *See* INSIDE EPA, *supra* note 4.

state toxics laws not in direct conflict with it.[17] After the introduction of the bill, Lautenberg also signed on to co-sponsor "The Chemical Safety Improvement Act"[18] ("CSIA"), which takes a narrower approach to toxics regulation and has bipartisan support.[19] Reactions to the new approach of CSIA are mixed, with some environmental groups supporting the proposed legislation because it " 'has a higher likelihood of passing' " and " 'improves EPA's ability to work relative to current [law],' "[20] while others state the bill " 'scales back safety standards from the Lautenberg legislation, fails to give U.S. EPA firm deadlines or enough funding to review potentially harmful chemicals and doesn't do enough to protect children and other at-risk populations . . . .' "[21] Meanwhile, house republicans, not wanting to feel left out, have also introduced a bill; the bill is sponsored by Rep. John M. Shimkus (R-Ill.) and titled the Chemicals in Commerce Act ("CCA").[22] The bill shares many similarities with CSIA: both bills would preempt state laws and require the EPA to classify chemicals as either a high priority or low priority for regulation.[23]

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17. Safe Chemicals Act of 2013, S. 696, 113th Cong., § 18 (2013) (stating that "[n]othing in this Act affects the right of a State or a political subdivision of a State to adopt or enforce any regulation, requirement, or standard of performance that is different from, or in addition to, a regulation, requirement, liability, or standard of performance established pursuant to this Act unless compliance with both this Act and the State or political subdivision of a State regulation, requirement, or standard of performance is impossible, in which case the applicable provision of this Act shall control").

18. Chemical Safety Improvement Act, S. 1009, 113th Cong. (2013).

19. Jason Plautz, *How Lautenberg and Vitter Found Common Ground*, E&E DAILY (May 23, 2013), http://www.eenews.net/stories/1059981681.

20. *Id.* (quoting Richard Denison, Environmental Defense Fund).

21. *Id.* (quoting Ken Cook, Environmental Working Group).

22. *Chemicals in Commerce Act (CICA)*, ENERGY & COM. COMMITTEE (Feb. 27, 2014), https://energycommerce.house.gov/fact-sheet/chemicals-commerce-act-cica; *see* Chemicals in Commerce Act, H.R. __, 113th Cong. (2014) (in discussion draft form as of Mar. 15, 2014). Many commentators have already begun expressing their discontent with the Chemicals in Commerce Act. *See* SAFER CHEMICALS HEALTHY FAMILIES, THE CHEMICALS IN COMMERCE ACT: UNDERMINING PUBLIC HEALTH AND SAFETY IN THE NAME OF REFORM, *available at* http://www.saferchemicals.org/PDF/chemicals_in_commerce_act_factsheet.pdf (last visited Mar. 15, 2014) (stating that the Chemicals in Commerce Act rolls back state health protections and shields many chemicals from review indefinitely); Letter from Sharon Rosen, Bd. Chair, Envtl. Health Strategy Ctr., to John Shimkus, Chairman, Subcomm. on Env't and the Econ. (Mar. 10, 2014) (on file with author), *available at* http://www.saferchemicals.org/PDF/letters_of_opposition/ehsc_letter_in_opposition_to_cica.pdf (stating that the Chemicals in Commerce Act would violate states' rights to protect their people and shield many chemicals from review indefinitely).

23. Cheryl Hogue, *Reforming the Toxic Substances Control Act*, CHEMICAL & ENGINEERING NEWS (Feb. 28, 2014), https://cen.acs.org/articles/92/web/2014/02/Reforming-Toxic-Substances-Control-Act.html. *Compare* H.R. __, §§ 6, 17, *with* S. 1009, §§ 4(e), 15.

III. THE NATURE OF PREEMPTION

Any reform to toxics legislation will have to accommodate state toxics laws or preempt them. The power of the federal government to preempt laws of the several states must necessarily have its roots in the Constitution. The Supremacy Clause states that federal laws "shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." [24] While normally the Supremacy Clause is interpreted as the symbolic foundation for the law, Caleb Nelson has argued that the text of the Supremacy Clause itself provides a substantive test for preemption.[25]

> It requires courts to ignore state law if (but only if) state law contradicts a valid rule established by federal law, so that applying the state law would entail disregarding the valid federal rule. In this respect, questions about whether a federal statute preempts state law are no different from questions about whether one statute repeals another.[26]

Nelson's formulation of the Supremacy Clause test mirrors the judge-made test of express preemption. A state law is expressly preempted if the legislature has manifested its intent to preempt state law by expressly stating so.[27] It follows that if the legislature has expressly stated its intent to preempt state law, in much the same way that a federal law overrules a prior law, then following the preempted state law would entail disregarding the valid federal rule.[28] It also follows that if Congress decided to expressly preempt state laws or individual provisions of state laws, then it must not have intended to preempt other unexpressed laws or separate provisions of those laws.[29] However, if there is any ambiguity as to whether Congress intended to preempt state law or ambiguity concerning the scope of preemption, then the

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24. U.S. CONST. art. VI, cl.2.

25. Caleb Nelson, *Preemption*, 86 VA. L. REV. 224, 234–35 (2000); *see also* Jamelle C. Sharpe, *Toward (a) Faithful Agency in the Supreme Court's Preemption Jurisprudence*, 18 GEO. MASON L. REV. 367, 372–81 (2011) (describing the three policy considerations of preempting state laws: federalism, corrective justice, and regulatory efficiency).

26. *Id.* at 234.

27. *See* Medtronic, Inc. v. Lohr, 518 U.S. 470, 484 (1996); Cipollone v. Liggett Grp., Inc., 505 U.S. 504, 517 (1992).

28. Nelson, *supra* note 25, at 234.

29. *Id.* (noting that "the familiar principle of *expression unius est exclusio alterius* [provides that] Congress' enactment of a provision defining the pre-emptive reach of a statute implies that matters beyond that reach are not pre-empted").

ambiguity is resolved to preserve the state law due to the presumption against preemption. [30] The presumption against preemption is strongest when the legislature has intervened in a field traditionally occupied by the states.[31]

A brief history of regulations of toxics chemicals is pertinent to determine whether toxics regulation is a field traditionally regulated by the states. While the first law to regulate toxics was TSCA, passed in 1976, [32] the EPA was rendered virtually powerless to implement it after the ruling of *Corrosion Proof Fittings v. EPA* in 1991.[33] Even before the ruling of *Corrosion Proof Fittings*, the state of California began regulating toxics with its flagship state-regulation: Proposition 65, in 1986.[34] After which, from 2001 to 2010, eighteen states passed seventy-one chemical safety laws with bipartisan support.[35]

States were able to pass these laws because TSCA preserved the states' role in protecting public health[36] by including a savings clause. [37] Therefore, Proposition 65 was then the first state regulation to grant toxic chemicals regulating authority, after which the majority of other states began to significantly regulate

30. *See Medtronic*, 518 U.S. at 485.

31. *Id.* (citing Rice v. Santa Fe Elevator Corp., 331 U.S. 218, 230 (1947)).

32. Toxic Substances Control Act, Pub. L. No. 94-469, 90 Stat. 2003 (1976) (codified at 15 U.S.C. §§ 2601–2692 (2012)).

33. *See supra* notes 7–10 and accompanying text.

34. OFFICE OF ENVTL. HEALTH HAZARD ASSESSMENT, *Proposition 65*, CA.GOV (last updated Feb. 2013), http://oehha.ca.gov/prop65/background/p65plain.html.

35. MIKE BELLIVEAU, HEALTHY STATES: PROTECTING FAMILIES FROM TOXIC CHEMICALS WHILE CONGRESS LAGS BEHIND 6 (Sarah Doll et al. eds., 2010).

36. *See* Barnes v. Glen Theatre, 501 U.S. 560, 560-61 (1991) (holding that protecting health, safety, and morals of citizens is within the police powers of the state); People of State of Ill. v. Electrical Utilities, 41 B.R. 874, 876 (N.D. Ill. 1984) (stating in dicta that protecting the public from PCBs regulated under TSCA is within a state's police power).

37. The preemption section in TSCA begins by explicitly stating that nothing in the act shall affect the regulation of any chemical substance under state or local law, subject to specific exceptions. 15 U.S.C. § 2617(a)(1) (2012). TSCA excepts instances when the EPA requires by rule the testing of any chemical, upon which "no State or political subdivision may . . . establish or continue in effect a requirement for the testing of such substance or mixture for purposes similar to those for which testing is required under such rule." *Id.* § 2617(a)(2)(A). TSCA also excepts instances when the EPA by rule regulates a chemical substance to protect health and the environment, upon which no State or political subdivision may establish or continue a rule applicable to the same chemical, or article containing a chemical, unless the rule is the same as that established by the EPA, the rule is adopted under the authority of a federal law, or the rule prohibits the use of the chemical. *Id.* § 2617(a)(2)(B).

toxic chemicals to fill the regulatory void,[38] especially to protect children.[39] However, TSCA a federal law, was still the first law to begin regulating toxic chemicals. In most cases with an express preemption issue, courts analyze the extent of federal regulation in a field to determine whether it has been traditionally regulated by the federal government or the states. For example, in *English v. General Electric Co*, the Court determined that the federal government exclusively occupied the field of nuclear safety (as opposed to regulation of nuclear generation or sales) because the federal government began regulating in 1954 with the passage of The Atomic Energy Act of 1954, continued regulating with the Energy Reorganization Act in 1974, and had routinely amended both statutes. [40] The Court concluded that "'the Federal Government has occupied the entire field of nuclear safety concerns, except the limited powers expressly ceded to the States.' "[41] The specific limited powers ceded to the States by The Atomic Energy Act include "regulation of the 'generation, sale, or transmission of electric power produced through the use of nuclear facilities licensed by the Commission.' "[42] Additionally, the Atomic Energy Act's second savings clause "provides that the Atomic Energy Act shall not 'be construed to affect the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards.' " [43] Therefore, the regulated field, nuclear safety, was completely occupied by the federal government, not just because of its history of regulation, but because it expressly preempted the states from regulating within that field.

In contrast, as opposed to the federal government's continued expansion and modification of nuclear safety law in *English*,[44] TSCA has remained unaltered since its initial passage. Moreover,

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38. BELLIVEAU, *supra* note 35, at 18 (The state survey from 2010 found that three main factors drove states to develop their own toxics laws in recent years: "growing scientific evidence of harm, the resulting strong public outcry, and frustration with the failure of Congress to act."). Of the seventy-one different laws passed by states in recent years, sixty-six of them were single-focus laws focusing on specific chemicals (such as banning BPA's or flame retardants), as well as single-focus policies focusing on green cleaning or safe cosmetics for example. *Id.* at 14. The state laws and regulations have been for an increased protection to children by phasing out harmful chemicals. *Id.* at 6.

39. *Id.* (Additionally, a recent poll found that seventy-eight percent of Americans are seriously concerned with the threat to children's health from toxic chemicals in consumer products.).

40. English v. Gen. Elec. Co., 496 U.S. 72, 80–82 (1990).

41. *Id.* at 82 (quoting Pacific Gas & Elec. Co. v. State Energy Res. Conservation & Dev. Comm'n, 461 U.S. 190, 212 (1983)).

42. Entergy Nuclear Vt. Yankee, LLC v. Shumlin, 733 F.3d 393, 410 (2012) (quoting 42 U.S.C. § 2018 (2006)).

43. *Id.* (quoting 42 U.S.C. § 2021(k) (2006)).

44. English v. Gen. Elec. Co., 496 U.S. 72, 80–82 (1990).

from a more pragmatic standpoint, the federal government has not regulated toxics under TSCA since *Corrosion Proof Fittings v. EPA* in 1991.[45] Additionally, and in contrast to the express preemption of nuclear safety in *English*, TSCA did not expressly preempt states from regulating toxic chemicals manufacturing.[46] In fact, TSCA expressly permits states to ban a chemical even if the EPA has issued a requirement on the chemical.[47] Therefore—because of the absence of federal toxics regulations, TSCA's savings clause for state toxics regulation, and because of the many laws passed by states in recent years—states have traditionally regulated the field of chemical safety. Because states have traditionally regulated the field of chemical safety, federal laws should not preempt them cavalierly, without regard to existing safeguards for at-risk subpopulations. The presumption against preemption, in reference to CSIA, would likely not foreclose preemption due to the express, explicit nature of the preemption provision.[48] However, the presence of the presumption, in the context of this note, is not an argument that CSIA will not preempt state laws, but instead, should convey the reasoning for the existence of the presumption against preemption in the first place: courts attempt to limit Congress's expansion of laws when it enters a field traditionally regulated by states.

IV. THE STATES' CURRENT ROLE IN REGULATING TOXIC CHEMICAL SAFETY

The Safer Chemicals, Healthy Families coalition surveyed the different state toxics laws to elucidate their benefits for public health and to advocate for TSCA reform that preserved state laws.[49] While initially written in support of proposed TSCA reform in 2010, its findings are relevant to show why and how states have taken a more active role in regulating toxic chemicals. Over eighty-nine percent of the roll-call votes by state legislatures were for toxics regulations more protective than their federal counterparts, especially when designed to protect children.[50] The state law expansion has been in reaction to TSCA's current unsatisfactory regulatory scheme because it is insufficient to protect children from toxic chemicals.[51] Other drivers of state-

45. Sachs, *supra* note 13, at 1830.
46. *See supra* note 37.
47. 15 U.S.C. § 2617(a)(2)(B) (2012).
48. *See infra* Part III(A).
49. BELLIVEAU, *supra* note 35, at 6.
50. *Id.*
51. *Id.* at 7.

action include "growing scientific evidence of harm, the resulting strong public outcry, and frustration with the failure of Congress to act."[52] The survey also suggests that the state-action expansion will cease once TSCA is reformed to provide greater protection to children and other at-risk groups.[53]

In light of concerns over inadequate federal toxics regulation, the survey recommended that states continue to pass their own legislation to offer better protection to people, especially children.[54] State-action expansion coupled with industry frustration over differing state laws will help drive federal reform and, eventually, industry acceptance.[55] However, even with federal reform, the survey recommends that states continue to adopt more stringent laws if states determine that existing restrictions are inadequate to protect people.[56] Allowing for state laws to offer greater protection will legitimize Congress's credibility on seeking to provide greater protection to consumers and children.[57]

A. The Preemption by CSIA

Subsections 4(e)(1)(A)(i)-(ii) of CSIA will require the EPA to designate each chemical as either a high or low priority.[58] A chemical should be designated as high priority if it has the "potential for high hazard or high exposure . . . ."[59] A chemical should be designated as a low priority if it is likely safe for its intended use.[60] If a chemical is designated as a low priority, EPA cannot perform a safety assessment (determining the risk of a substance)[61] until it has been reprioritized as a high priority.[62] These new safety determinations should require the EPA to regulate more chemicals overall, as well as requiring the labeling of or phase-out of high priority chemicals.[63] Instead of a definite deadline for making safety determinations, the EPA is only required to make them in "a timely manner."[64] However, if the EPA is unable to make the determination with existing data, Section 4(f) allows the EPA to require the development of new

52. *Id.* at 18.
53. *See id* at 7.
54. *Id.* at 19.
55. *Id.*
56. *Id.*
57. *See id.*
58. Chemical Safety Improvement Act, S. 1009, 113th Cong. § 4(e)(1)(A)(i)-(ii) (2013).
59. *Id.* § 4(e)(3)(E)(i).
60. *Id.* § 4(e)(3)(F).
61. *Id.* § 3(4).
62. *Id.* § 4(e)(3)(H)(ii).
63. *Id.* § 6(c)(9)(A)(i), (c)(9)(B)(i); Plautz, *supra* note 19.
64. S. 1009, § 4(e)(1)(C)(ii).

testing data by promulgating a rule, entering into a testing consent agreement, or by issuing an order.[65]

CSIA's section on preemption begins with "no State or political subdivision of a State may establish or continue to enforce" a law requiring the testing of a chemical for data when it is reasonably likely to produce the same data.[66] Because preemption of testing hinges on reasonable likelihood of producing "the same results or information required," state testing requirements may not be preempted if there is a chance that a state requirement may produce different results.[67]

Under CSIA's preemption, a state may also not establish or continue to enforce a prohibition or restriction on the manufacturing, processing, distribution, or the use of chemicals after issuance of a completed safety determination.[68] However, a state agency may submit information and safety assessments of its own to facilitate the EPA's safety assessment of a high priority substance.[69] The prohibition on state or local establishment or enforcement of a prohibition or restriction on the manufacturing, processing, distribution in commerce, or use of a chemical after issuance of a completed safety determination unambiguously preempts state law.[70] Therefore, existing state restrictions on chemicals would be preempted once safety determinations are issued, and similarly, no requirements on other chemicals could be established once that chemical is prioritized by the EPA.[71]

The only state laws that would not be preempted by CSIA's broad preemption provision are those listed in subsection 15(c).[72] CSIA first exempts any state law adopted under the authority of federal law.[73] Second, any "reporting or information collection requirement" not already provided for in CSIA is exempt.[74] Third, any regulation related to "water quality, air quality, or waste treatment or disposal that does not impose a restriction on the manufacture, processing, distribution in commerce, or use of a chemical" is exempt.[75] Other laws can work in tandem with the state law. For example, a state law can require reporting of toxic-chemical manufacturing and the federal law can actually restrict

65. *Id.* § 4(f)(1)-(2).
66. *Id.* § 15(a)(1).
67. *Id.*
68. *See id.* § 15(a)(2).
69. *Id.* § 6(b)(2)(B)(i)(III).
70. *Id.*
71. *Id.*
72. *Id.* § 15(c).
73. *Id.* § 15(c)(1).
74. *Id.* § 15(c)(2).
75. *Id.* § 15(c)(3)(A)-(B).

the manufacturing of the chemical.[76] There is no reason why a prioritization of a chemical for regulation should prevent a state from regulating an aspect of that chemical that does not interfere with the federal regulation. In fact, in the past, the EPA has encouraged states to regulate chemicals.[77]

B. California's Safer Products Regulations: Innovative Lawmaking

Even as TSCA reform progressed, California's Department of Toxic Substances Control issued new regulations.[78] The goal of the new Safer Products Regulations (SPR) is to reduce toxic chemicals in consumer products by comparing and considering the use of less dangerous alternative chemicals.[79] The SPR "Alternatives Analysis" framework requires manufacturers, or other "responsible entit[ies]," to weigh factors including "[a]dverse environmental impacts," "[a]dverse public health impacts," "[a]dverse waste and end-of-life effects," "[e]nvironmental fate," "[m]aterials and resource consumption impacts," "[p]hysical chemical hazards," and "[p]hysiochemical properties" against factors such as the product's intended use and various economic factors.[80] In weighing these factors, the responsible entity is not required to undergo any specific testing requirements. Instead, the responsible entity must prepare a more holistic Alternatives Analysis report to explain their overall process and their choice of chemical.[81] The SPR provides a unique alternative to toxics regulation by relying on procedural requirements rather than traditional command-and-control regulation under TSCA/CSIA. Because the Alternatives Analysis sections of the SPR do not mandate testing or result in any restrictions of chemicals, CSIA should not preempt them.[82] However, California can restrict the use of a chemical and its distribution in commerce if the toxic

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76. *See* Jim Florio, *Federalism Issues Related to the Probable Emergence of the Toxic Substances Control Act*, 54 MD. L. REV. 1354, 1370–71 (1995) (providing an example of how New Jersey's Pollution Prevention Act would fulfill the reporting requirements of TSCA).

77. *See* Tracy Daub, *California—Rogue State or National Leader in Environmental Regulation?: An Analysis of California's Ban of Bromated Flame Retardants*, 14 S. CAL. INTERDISC. L.J. 345, 352 (2005).

78. Ronnie Green, *California Bypasses Feds, Presses Ahead on Regulation of Toxic Chemicals*, THE CTR. FOR PUB. INTEGRITY (Oct. 1, 2013), http://www.publicintegrity.org/2013/10/01/13480/california-bypasses-feds-presses-ahead-regulation-toxic-chemicals.

79. CAL. CODE REGS. tit. 22, §§ 69501(a), 69501.01(a)(10), 69505.5(a)-(f) (2013).

80. *Id.* §§ 69505.5(c)(2)(A)-(G), 69505.6(2)(A)-(C), (3).

81. *Id.* § 69505.7(f), (g)(2), (h), (j)(2).

82. *See* Chemical Safety Improvement Act, S. 1009, 113th Cong. § 15(a)(2), (b) (2013) (Any preexisting requirement by a state would be preempted by § 15(a)(2) after issuance of a completed safety determination, whereas a state would be foreclosed from issuing a new requirement after a chemical is prioritized, per § 15(b).)

chemical is not replaced with a safer alternative chemical,[83] which would be preempted by CSIA.[84]

The preservation of the existing federal-state relationship is best justified by the states' innovative role in rulemaking because it has been used in the past to remedy one of the existing faults with TSCA: protecting subclasses and hot spots.[85] Subclasses include children and pregnant women who are more susceptible to harm from toxic chemicals.[86] Hot spots are highly polluted areas (typically from greater-than-average concentrations of air pollutants in urban areas) that experience a greater cumulative impact from toxic chemicals.[87] Studies have found that hazardous- and toxic-emission facilities are often sited in racial communities:[88] the ethnic majority of a community is among the factors associated with increased-exposure to pollution.[89] The impacts on these areas are often site-specific due to both the cumulative impact of toxics and the subclasses' susceptibility. Without knowledge of the bioaccumulation of health-impairing toxics on a particular community, the EPA will not know how the chemical will affect that community more than the average community. A law that requires the EPA to assess the cumulative impacts of toxics on communities would best resolve this deficiency.[90] The National Academy of Sciences recommends "considering aggregate risks of exposure to the same chemical from multiple sources, as well as cumulative risks from simultaneous exposure to multiple chemicals and other risk factors."[91] However, neither TSCA

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83. CAL. CODE REGS. tit. 22, § 69506.4 (2013).

84. *See* S. 1009, § 15(a).

85. Harris et al., *supra* note 14; *see also* BELLIVEAU, *supra* note 35.

86. *See* Sarah Bayko, *Reforming the Toxic Substances Control Act to Protect America's Most Precious Resource*, 14 SOUTHEASTERN ENVTL. L.J. 245, 256–62 (describing children's and fetuses' unique susceptibility to toxic chemicals).

87. *See* Wendy Wagner & Lynn Blais, *Children's Health and Environmental Exposure Risks: Information Gaps, Scientific Uncertainty, and Regulatory Reform*, 17 DUKE ENVTL. L. & POL'Y F. 249, 257–59 (2007) (providing an example of greater motor vehicle emissions in highly-urban areas, creating a hot spot).

88. *See, e.g.*, James L. Sadd et al., *"Every Breath You Take . . .": The Demographics of Toxic Air Releases in Southern California*, 13 ECON. DEV. Q. 107 (1999).

89. LINDA S. ADAMS & JOAN E. DENTON, CUMULATIVE IMPACTS: BUILDING A SCIENTIFIC FOUNDATION 2 (2010).

90. *See* Letter from Pamela K. Miller et al., Exec. Dir., Alaska Cmty. Action on Toxics, to Sen. Barbara Boxer, Chairwoman, Subcomm. on Env't & Pub. Works and to Sen. David Vitter, Ranking Member, Subcomm. On Env't & Pub. Works, (June 12, 2013) (on file with author), *available at* http://static.ewg.org/pdf/Combined-CSIA-Letters-2013.pdf.

91. *Hearing on the Chemicals in Commerce Act before the Subcomm. on the Env't and the Econ. of the H. Comm. on Energy. and Commerce*, 113th Cong. (2014) (footnotes omitted) (statement of Michael Belliveau, President and Executive Director of the Environmental Health Strategy Center) ("Without adhering to modern principles of risk assessment, EPA's safety determinations, when they are able to make them under the constraints of the House bill, will likely be 'wrong,' that is they won't be fully protective of the health of vulnerable populations." (footnotes omitted)); *see also id.* (statement of Phillip J. Landrigan, M.D.,

nor CSIA require a cumulative impact analysis. In contrast, The Safe Chemicals Act would require the EPA to measure the bioaccumulation of toxics in a community and to rely on that data when making a safety determination.[92] Additionally, the state of California's Office of Environmental Health Hazard Assessment ("OEHHA") published a report to guide agencies to consider the cumulative effects of toxic and hazardous pollutants from multiple sources.[93] The report found that the factors influencing increased exposure to toxic chemicals included socioeconomic factors such as income (both individual and community-wide), access to healthcare, and the race or ethnicity of the community.[94] Additionally, SPR requires OEHHA to consider the cumulative effect and aggregate effect of a chemical when listing a chemical as a Chemical of Concern, i.e., a chemical requiring an alternatives analysis.[95] While CSIA cannot preempt the alternatives analysis process, it would preempt any restriction on a Chemical of Concern's manufacture, use, or distribution in commerce.[96] Therefore, the assessment of a chemical's cumulative effect on health would be rendered useless to protect the public health if state-issued requirements, like those under the SPR, are preempted.

If a state's action cannot fit within the narrow exceptions within subsection 15(c), a state may apply for a waiver under certain conditions.[97] A state may be granted a waiver if it cannot wait for the scheduled deadline under which the EPA will complete its safety evaluation; if there are compelling "state or local conditions [that] warrant granting the waiver to protect human health or the environment"; the rule will not unduly burden interstate and foreign commerce; the rule does not violate any federal law, rule, or order; and the rule is "based on the best available science and is supported by the weight of the evidence."[98] CSIA does, however, recognize the importance of at least not further extending the unreasonable delay. Instead of the usual 180-day time period to grant or deny the waiver based on the

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Dean for Global Health, Icahn School of Medicine at Mount Sinai) ("One critical component of a new, health-based chemical policy in the United States must be a legally enforced requirement that chemicals already on the market be systematically examined for potential toxicity beginning with those chemicals that are found through biomonitoring to be most widespread in the American population, those for which there is evidence of toxicity, and those that are persistent and bioaccumulative.").

92. Safe Chemicals Act of 2013, S. 696, 113th Cong., § 7(d)(2)(B)(ii) (2013).
93. ADAMS & DENTON, *supra* note 89.
94. *Id.* at 2.
95. CAL. CODE REGS. tit. 22, § 69502.2(b)(2)(A) (2013).
96. *See supra* notes 83–84 and accompanying text.
97. *See* Chemical Safety Improvement Act, S. 1009, 113th Cong. § 15(c) (2013).
98. *Id.* § 15(d)(1)(B)(i)-(iv).

requirements in paragraph (1),[99] the EPA only has ninety days to grant or deny the waiver in the case of an unreasonable delay.[100] Additionally, all waivers are subject to notice and comment requirements.[101]

As long as the claims of hot spots requiring state intervention are based on the best available science, are supported by the weight of evidence, and do not unduly burden interstate foreign commerce—states may be able to use the waiver provision of CSIA to provide greater protection to hot spots.[102] Vulnerable subpopulations may qualify as a compelling local or state reason to issue a waver to continue a requirement. However, the waiver would likely not be available when state officials determine that the state as a whole needs protection from a particular chemical substance.[103] The burden of proving that these state-wide bans are needed to protect localized subclasses and communities may be difficult for a state to justify, especially when it must survive the second prong: "compliance with the proposed requirement . . . does not *unduly* burden interstate and foreign commerce . . . ."[104] It may be easier for a local political subdivision to show that subclasses within its community require greater protection than the national standard because the vulnerable subclass will make up a greater percentage of the area and the stricter requirement will be localized. However, even local regulations can still violate the dormant commerce clause.[105] The waiver provision, were it not for the potentially stifling language referring to the burden on interstate and foreign commerce, may provide relief for states to continue their own innovative toxic chemical laws.[106]

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99. *Id.* § 15(d)(3)(A).

100. *Id.* § 15(d)(3)(B).

101. *Id.* § 15(d)(4).

102. Chemical Safety Improvement Act, S. 1009, 113th Cong. § 15(d)(1)(B)(i)-(iv) (2013); *see supra* text accompanying notes 86–97.

103. Harris et al., *supra* note 14.

104. S. 1009, § 15(d)(1)(B)(ii) (emphasis added).

105. *See, e.g.*, C & A Carbone, Inc. v. Town of Clarkston, N.Y., 511 U.S. 383, 390–91 (1994) (holding that a town's ordinance requiring that all solid waste processed or handled in the town be processed at the town's transfer station violated the dormant commerce clause because it discriminated based on where the service is provided). A regulation requiring that a product be manufactured without a toxic chemical within a city, county, or state, may also unduly burden interstate commerce by discriminating against manufacturing occurring outside of the state or political subdivision. *See id.* However, if the state or political subdivision can show that, under rigorous scrutiny, it has no other means to advance a legitimate state interest, even a discriminatory regulation will be upheld. *See* Maine v. Taylor, 477 U.S. 131, 148-49 (1986) (holding that Maine's ban on the import of shellfish did not violate the dormant commerce clause because it was the only way to prevent the spread of disease).

106. *See generally* Jonathon H. Adler, *Letting Fifty Flowers Bloom: Using Federalism to Spur Environmental Regulation*, *in* JIM CHEN, THE JURISDYNAMICS OF ENVIRONMENTAL PROTECTION 262, 272-81 (2003) (advocating for ecological forbearance where a state can petition the EPA to be exempt from a requirement so it may issue its own regulations).

C. Objections to Preemption

The Attorney Generals' offices of nine states wrote a letter to the Senate Environment and Public Works Majority Committee to express their concerns over CSIA's preemption.[107] The letter stated that CSIA would "seriously jeopardize public health and safety by preventing states from acting to address potential risks of toxic substances and from exercising state enforcement powers" by preempting state laws.[108] States have traditionally occupied the field of protecting individual's health and safety.[109] In support, the attorney general offices cite several different chemical requirements they have issued,[110] and in support of the states' argument of occupying toxics regulation, no chemicals that have been banned or regulated under state programs have also been banned or regulated under Section 6 of TSCA.[111] The existing federal-state relationship of regulating toxic substances should remain unchanged due to the forty-year history where state and federal governments have regulated toxic chemicals side-by-side and to preserve the states' role in attempting new and innovative

107. Harris et al., *supra* note 14.

108. *Id.* at 1.

109. *Id.* at 2 (stating that "protection of children's health from harmful chemicals has been a particular focus of the states, and many laws in this area have been enacted with strong bipartisan support"); *see also* text accompanying notes 32–49 (discussing the significance of a federal and state presence in a field).

110. *Id.* at 4–5 California regulations include a state-wide bans on different products; Proposition 65, a right to know law; and the state's Green Chemistry Program. *Id.* Maryland regulations include regulations and bans on certain chemicals in children's products. *Id.* Massachusetts's regulations include bans on certain mercury-added products, bans on different chemicals, a comprehensive chemicals management scheme, and children's' products containing a hazardous substance. *Id.* Oregon's regulations include bans on products containing more than one-tenth of certain chemical substances, including flame retardant chemicals, and any toxic substance identified by regulation; bans on any products that make hazardous substances accessible to children; and a ban on mercury use. *Id.* Vermont's regulations include a ban on lead in consumer products, a ban on brominated and chlorinated flame retardants, a ban on phthalates, and a ban on bisphenol. *Id.* Washington's regulations include bans on products containing bolybrominated diphenyl ethers, bans on sports bottles, sports bottles, or children's bottles, cups, or containers that contain bisphenol A, and a ban on the distribution or sale of children's products containing lead, cadmium, and phthalates above certain concentrations. *Id.* For comparison, chemicals banned or regulated by the EPA include polychlorinated biphenyls (PCBs), fully halogenated chlorofluoroalkanes, dioxin, asbestos, hexavalent chromium, mixed mono and diamides of an organic acid, triethanolamine salts of a substituted organic acid, triethanolanime salt of tricarboxylic acid, and tricarboxylic acid. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-05-458, CHEMICAL REGULATION: OPTIONS EXIST TO IMPROVE EPA'S ABILITY TO ASSESS HEALTH RISKS AND MANAGE ITS CHEMICAL REVIEW PROGRAM 58–61 (2005).

111. *See* Harris et al., *supra* note 14.

protective rules.[112] States have passed innovative laws aimed at reducing pollution through multi-media efforts, as opposed to the checkerboard system of federal, medium-specific regulations.[113] The EPA's checkerboard regulations have led to a gap in the regulation of toxic chemicals; this gap has been filled by state laws that regulate from cradle to grave.[114] California's innovative alternatives analysis system is also an example of how states' environmental regulation is better suited to adapt and how state agencies revisit and improve their regulatory structure.[115] The toxics-regulation renaissance is not limited to those states described in note 113, *supra*; altogether, at least thirty-three states plan to expand their regulation of toxic chemicals in 2014,[116] which is more than the twenty-six states that considered toxics regulations in 2013[117] and the twenty-eight states that considered toxic regulations in 2012.[118] Four states, thus far, have developed

112. *Id.* For instance, California's new alternatives-analysis law is a first of its kind attempt at regulating toxic chemicals by putting manufacturer's in the position of developing safer alternatives to avoid the traditional command and control requirements by TSCA. *See* CAL. CODE REGS. tit. 22, §§ 69501–505.7 (2013). Additionally, a bill from Massachusetts also would require an alternatives analysis similar to California's. S. 387, 188th General Court, § 6 (Mass. 2013) ("seek[ing] to reduce the presence of priority chemical substances in consumer products and the workplace by promoting safer alternatives to such substances"). Other states have also introduced alternatives analysis bills. *See, e.g.,* H. 744, 2013–2014 Leg. Sess. (Vt. 2014) ("It is the policy of the State of Vermont to protect public health and the environment by reducing exposure of its citizens and vulnerable populations such as children, from exposure to toxic chemicals when safer alternatives exist."). Other state bills include a ban on flame-retardants in children's products in Maryland, *see* H.R. 0229, 2014 Reg. Sess. (Md. 2014), and a bill requiring the development of a toxic chemicals reduction strategy in Oregon, *see* H.R. 3257, 76th Leg. Assembl., Reg. Sess. (Or. 2011).

113. *See* David L. Markell, *States as Innovators: It's Time for a New Look to our "Laboratories of Democracy" in the Effort to Improve Our Approach to Environmental Regulation*, 58 ALB. L. REV. 347, 362 (1994).

114. *Id.* at 366-67 (describing Massachusetts's pollution management system that aims to reduce toxic waste by also reducing the use of toxic substances at the manufacturing stage); *see also supra* note 67 (describing the alternatives analysis laws that would similarly prevent toxic wastes by encouraging manufacturers to use safer alternatives that would not produce toxic wastes).

115. *See id.*, at 380-82 (describing New York's executive order requiring the Department of Environmental Conservation to "reevaluate regulations to ensure that they adequately protected public health, safety, and welfare, but also did not create undue regulatory burdens").

116. *At Least 33 States to Consider Toxics Policies in 2014*, SAFERSTATES (Jan. 28, 2014), http://safehealthyct.org/2014/01/28/at-least-33-states-to-consider-toxics-policies-in-2014/.

117. *26 States to Consider Toxic Chemicals Legislation in 2013*, SAFERSTATESK (Jan. 24, 2013), http://thedakepage.blogspot.com/2013/01/26-states-to-consider-toxic-chemicals.html.

118. *28 States to Consider Toxics Chemicals Legislation in 2012*, WASH. TOXICS COALITION, http://watoxics.org/toxicswatch/28-states-to-consider-toxic-chemicals-legislation-in-2012 (last visited Mar. 17, 2014).

comprehensive chemical management laws.[119] These laws, and Maine's Kid Safe Products Act in particular, are innovative to the extent that they strive to protect children while conserving fiscal resources:[120]

> These comprehensive state chemical policies generate multiple outcomes. They authorize regulatory action to prevent exposure to dangerous chemicals in specific products, avoiding chemical-by-chemical legislative fights. By formally listing chemicals of high concern and priority chemicals, they incentivize voluntary actions in the marketplace to move toward safer alternatives. Through chemical use reporting requirements, they begin to fill critical gaps.[121]

Additionally, these innovative environmental laws have taken the form of a capital asset due to the long time in which they've been in place and the investments that interest groups and the state governments have made in implementing and improving them.[122] Preempting states laws like California's would be wasteful. California's constantly-evolving Proposition 65, in place since 1986,[123] is one such example of a long-term investment. By issuing regulations from Proposition 65 since 1986, the state of California has gained expertise in regulating toxic chemicals.[124] Additionally, the state of California has also developed a long-term contractual relationship with different interest groups (both

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119. Michael E. Belliveau, *The Drive for a Safer Chemicals Policy in the United States*, 21 NEW SOLUTIONS 359, 372 (2011); *see also* Proposition 65, CAL. HEALTH & SAFETY CODE §§ 25249.5–25249.14 (West 2013) (regulating toxic chemicals by requiring warnings of toxicity and allowing for prohibitions); Kid Safe Products Act, ME. REV. STAT. tit. 38 §§1691–1699-B (2013) (regulating toxic chemicals in children's products); Toxic Free Kids Act, MINN. STAT. §§ 116.9401–116.9407 (2013) (requiring the Minnesota Department of Health to create two lists of chemicals: chemicals of high concern and priority chemicals – as well as revisit the chemicals of high concern list every three years); Children's Safe Products Act, WASH. REV. CODE §§ 70.240.010–70.240.060 (2013) (requiring the department of health to categorize high priority chemicals). *See generally* Belliveau, *supra*, at 373 (comparing the four state comprehensive chemical management laws).

120. Belliveau, *supra* note 119, at 372; *see also* Kid Safe Products Act, ME. REV. STAT. tit. 38 §§1691–1699-B (2013) (regulating toxic chemicals in children's products by prioritizing them to save fiscal resources).

121. Belliveau, *supra* note 119, at 373.

122. *See* Jonathan R. Macey, *Federal Deference to Local Regulators: Toward a Public-Choice Explanation of Federalism*, 76 VA. L. REV. 265, 272–73 (1990).

123. *See* OFFICE OF ENVTL. HEALTH HAZARD ASSESSMENT, *supra* note 34.

124. *See* Macey, *supra* note 122, at 275 ("[O]ver time local regulators may have developed particularized expertise in a specific subject area, or they may have developed a long-term contractual relationship with one or more interest groups through a pattern of repeat dealings. Where these conditions obtain, existing local regulation takes the form of an income-producing capital asset.").

industrial and environmental) due to their repeat dealings.[125] Therefore, California's toxics regulations, like those of many states', should not be preempted because it would dissipate a valuable asset that has been invested in through the implementation of regulations over many years.[126]

Ken Cook of the Environmental Working Group elaborated on the dangers of not providing demographic-specific protection in CSIA. At risk groups, such as children, are harmed greater by toxic chemicals in the aggregate.[127] Mr. Cook advocates for a "reasonable certainty of no harm" approach, such as that utilized in the Food Quality Protection Act of 1996.[128] That approach, Mr. Cook contends, would require the EPA to avoid considering costs in making its safety determinations. Although not formally established within TSCA, the EPA has utilized a cost-benefit approach to regulating toxic substances like it did in *Corrosion Proof Fittings v. EPA*.[129]

A collection of thirty-four law professors, legal scholars, and public interest lawyers further argue that the changes in CSIA's safety determinations do not alter the cost-benefit approach that has persisted since *Corrosion Proof Fittings*.[130] The definition of "safety standard"—the standard to determine whether a chemical is safe for its intended use—under CSIA is an "unreasonable risk of harm."[131] The "unreasonable risk of harm" standard has been interpreted by courts over the years to require a cost-benefit analysis.[132] Therefore, CSIA can still require the EPA to undertake a cost-benefit analysis when determining a chemical's safety

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125. *See id.*

126. *See id.*

127. *Strengthening Public Health Protections by Addressing Toxic Chemical Threats: Hearing on S. 1009 Before the S. Comm. on Env't & Pub. Works*, 113th Cong. (2013) (statement of Kenneth A. Cook, President of the Environmental Working Group).

128. Food Quality Protection Act of 1996, Pub. L. No. 104–170, § 408(b)(2)(A)(ii), 110 Stat. 1489, 1516 (1996) (codified at 21 U.S.C. § 346(a) (2012)).

129. David M. Driesen, *Distributing the Costs of Environmental, Health, and Safety Protection: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform*, 32 B.C. ENVTL. AFF. L. REV. 1, 84 (2005); *see* Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1208 (5th Cir. 1991).

130. Letter from John S. Applegate et al., Professor of Law, Ind. Univ. Maurer Sch. of Law, to The Honorable John Shimkus, Chairman, House Energy & Commerce Comm., Subcomm. on Env't & Econ., and The Honorable Paul Tonko, Ranking Member, House Energy & Commerce Comm., Subcomm. on Env't & Econ. (June 12, 2013) (on file with author), *available at* http://static.ewg.org/pdf/Combined-CSIA-Letters-2013.pdf.

131. Chemical Safety Improvement Act, S. 1009, 113th Cong. § 3(16) (2013).

132. *See, e.g.*, John S. Applegate, *Synthesizing TSCA and REACH: Practical Principles for Chemical Regulation Reform*, 35 ECOLOGY L.Q. 721, 731-33 (2008); *see also* Noah M. Sachs, *Jumping the Pond: Transnational Law and the Future of Chemical Regulation*, 62 VAND. L. REV. 1817, 1830 (2009) (finding that ever since the Fifth Circuit rejected the EPA's approach to a cost-benefit analysis in *Corrosion Proof Fittings*, the EPA has never promulgated a rule banning the use of a chemical substance).

standard.[133] The letter to representatives of the Subcommittee on the Environment and Economy also expressed concerns over the expanded preemption of CSIA, alleging that "were [CSIA] to become law, it would perpetuate many of [TSCA's] shortcomings while preventing states from protecting public health and the environment in the absence of a robust federal law—or in the case of a strong federal regulatory framework—from complementing EPA's efforts to achieve this important goal."[134] However, because CSIA may not provide greater protection to children than TSCA due to the "unreasonable risk of harm" definition of the "safety standard," then states will need to continue promulgating rules to protect children and vulnerable populations from toxic chemicals. For instance, the "EPA could simply decide that the serious health risk to vulnerable populations is not 'unreasonable,' considering the lower population-wide risks and the costs to industry of protecting the most vulnerable."[135]

V. THE PREFERRED STATE-FEDERAL COOPERATIVE REGULATORY SYSTEM

Some legal academics, as well as environmental advocates, prefer federal regulation of the environment over state regulation because, they claim, public choice pathologies cause environmental interests to be secondary to business interests.[136] Other justifications for federal environmental regulation include preventing a "race to the bottom" whereby a state will lower its environmental standards to attract businesses that wish to operate without concerns for public health.[137] Competing states, wishing not to lose their businesses, will also lower their

133. Applegate et al., *supra* note 130, at 1.

134. *Id.* at 3.

135. *Chemicals in Commerce Act: Hearing before the Subcomm. on the Env't and the Econ. of the H. Comm. on Energy. and Commerce*, 113th Cong. (2014) (statement of Michael Belliveau, President and Exec. Dir. of the Envtl. Health Strategy Ctr.)

136. Richard L. Revesz, *Federalism and Environmental Regulation: A Public Choice Analysis*, 115 HARV. L. REV. 553, 555–56 (2001); *see also* Paul Boudreaux, *Federalism and the Contrivances of Public Law*, 77 ST. JOHN'S L. REV. 523, 534 (2003) (describing the phenomenon known as the race to the bottom, whereby business interests overcome environmental interests in an attempt to compete with other states' business interests).

137. Revesz, *supra* note 136, at 556; Richard L. Revesz, *Federalism and Interstate Environmental Externalities*, 144 U. PA. L. REV. 2341, 2343 (1996). *Compare* Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race to the Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210 *passim* (1992) (using neoclassical economic models to argue that there is no race to the bottom; instead competition among states follows competition among industries, benefitting social welfare), *with* Kirsten H. Engel, *State Environmental Standard-Setting: Is There a "Race" and Is It "to the Bottom"?*, 48 HASTINGS L.J. 271 *passim* (1997) (using empirical evidence from surveys of regulators to show that business relocation was a factor considered when making environmental rules and regulations).

environmental standards to keep those businesses in the state. This explanation assumes that only the states regulate to protect an aspect of public health. Alternatively, if the federal government also regulated toxic chemicals, there would not be a race to the bottom. For example, the federal government would establish a national standard that would protect individuals should a state attempt to lower toxics regulation to benefit businesses. Therefore, there is no race to the bottom when the "bottom" is a national standard implemented by the federal government. [138] The federalism relationship in environmental law whereby the federal government sets a standard and a state may supersede that level of protection is therefore the most logical for multiple reasons. It takes the following into account: that there are outside environmental concerns; [139] that the health effects of toxic chemicals occur intrastate, but the regulation of those chemicals has interstate repercussions;[140] that the race to the bottom may or may not actually be occurring;[141] and that states do not face as many fiscal pressures.[142]

The public choice pathologies are said to cause the under-regulation of the environment because at the state level the anti-regulatory group is more cohesive and can easily compete against the diffuse, less-organized, and unfocused group of the environmental advocates.[143] However, there is no reason why the public choice issues would not also exist at the federal level.[144] In fact, on a national scale, it is more likely that the diffuse environmental groups would be even more scattered when the issues are national, not just state-wide:[145]

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138. *See generally* Tracy Daub, *California–Rogue State or National Leader in Environmental Regulation: An Analysis of California's Ban of Bromated Flame Retardants*, S. CAL. INTERDISC. L.J. 345, 352–53 (2005) ("Normally, states are unimpeded in the direction they would like to take with respect to environmental regulation, as long as they meet the minimum federal guidelines, if any exist, and as long as the regulation does not involve an issue that requires national uniformity.").

139. *See* John P. Dwyer, *The Role of State Law in an Era of Federal Preemption: Lessons from Environmental Regulation*, 60 LAW & CONTEMP. PROBS. 203, 227 (1997).

140. *See id.* (acknowledging that different types of pollution produce different interstate and intrastate effects).

141. *See id.* at 224–26.

142. *See id.* at 228.

143. Revesz, *supra* note 136, at 559.

144. *See id.* at 559–60.

145. *See id.*, at 559–60; *see also id.* at 563 (explaining that the diffuseness of the groups is due in part because the environmental interests of actors in each state would likely vary as each state is subject to different environmental harms). *But see* Daniel C. Esty, *Revitalizing Environmental Federalism*, 95 MICH. L. REV. 570, 650 n. 302, 651 (1996) (stating that at the federal level, environmental advocates are better able to reach critical mass and compete on equal footing with industry advocates and that at separate jurisdictions it can be difficult to mobilize people to advocate for environmental protection).

> Moreover, the national aggregation of environmental interests results in the loss of homogeneity of interests, thereby further complicating organizational problems. For example, environmentalists in Massachusetts may care primarily about air quality, whereas environmentalists in Colorado may care more about limitations on logging on public lands. Other things being equal, state-based environmental groups seeking, respectively, better air quality in Massachusetts and more protection of public lands in Colorado are likely to be more effective than a national environmental group seeking both improvements at the federal level.[146]

For example, not all states will have the same vulnerable subclasses in urban areas that require more regulation than a national standard to protect their public health. In fact, the success of state-level campaigns for toxics reform can be attributed to focusing the issue on children's health, not broad public health.[147] Once the national standard of protection is met, more protection for vulnerable subclasses will be difficult to reach on a national level due to the diffuseness of environmental advocates. Additionally, because of business group's expendable resources, they would be more capable of maintaining cohesion when the scale is widened.[148]

The federal government itself is also diffuse. Due to limited resources at the federal level, the EPA cannot gain enough specialized knowledge to regulate localized areas.[149] States often enforce rules more often[150] and have better localized knowledge of community's environmental needs.[151] States should regulate toxic chemicals, especially those of localized concern, due to the ease of enforcing local requirements, and the susceptibility of hot spots to cumulative effects is a local concern better regulated by the states.[152]

The free-rider problem is also more readily apparent at the federal level. Whenever a large group of individuals work together for a common benefit, the natural tendency of each individual is

146. Revesz, *supra* note 136, at 563.
147. Belliveau, *supra* note 119, at 374.
148. *See* Revesz, *supra* note 136, at 559–60.
149. *See* Adler, *supra* note 106, at 266.
150. *See id.* at 270.
151. *See id.* at 266.
152. *See id.*

to expend fewer resources for the desired benefit because she can rely on the rest of the collective group to pay for the benefit.[153] For smaller groups, there is less of an incentive to free ride because each individual will necessarily have to play a larger role in the collective action.[154] Conversely, for larger groups, there is a larger incentive to free ride because the individual has a larger group to rely on.[155] Additionally, for benefits that can be divided among the members, individuals in a smaller group will have a larger piece of the pie, and therefore have a larger stake and incentive to expend resources.[156] Because logically, groups at the state level will be smaller, state-level collective actions to reform environmental laws will have less of a free-rider problem.[157] In fact, the prominence of state-level toxics regulation can be attributed to a cohesive coalition of environmental advocates in each state.[158]

Another common justification for federal regulation is that adversely affected parties have more difficulty avoiding state laws than federal laws.[159] This however would not be the case with

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153. *See* Revesz, *supra* note 136, at 561.

154. *See id.*

155. *See id.*

156. *See id.*

157. *See* Revesz, *supra* note 136, at 562 ("Nonetheless, it is unlikely that even small groups would provide the optimal amount. At the point at which the optimal amount of the collective good is provided, the marginal cost of providing the good is equal to the marginal benefit obtained by the group's members. That is, the cost of an additional unit of a good must be equal to the benefit derived from that unit. For a group to provide the optimal amount of the good, however, the marginal cost and benefit must be equal not only for the group as a whole, but also for each of its members. Any member facing a marginal cost higher than his marginal benefit would not find it in his interest to contribute to the provision of the good. As Olson explains, 'there is no conceivable cost-sharing arrangement in which some member does not have a marginal cost greater than his share of the marginal benefit, except the one in which every member of the group shares marginal costs in exactly the same proportion in which he shares incremental benefits.' " (footnotes omitted)).

158. Belliveau, *supra* note 119, at 374 ("[D]iverse health-based coalitions were organized with capacity to apply targeted grassroots power, direct legislative advocacy, and strategic communications . . . ."). Other factors leading to state-level toxics reforms include:

a product focus—parents and policymakers easily related to chemical threats in the home from consumer products, which were less politically threatening to in-state industries; a split-the-opposition strategy—the out-of-state chemical companies and their allied national trade groups remained villains, not local businesses and green chemistry entrepreneurs; and bipartisan wins—a series of winning campaigns built confidence and a bipartisan consensus that protecting children's health from the chemical industry was good politics. *Id.*

159. Macey, *supra* note 122, at 272–73; *see also* Dwyer, *supra* note 139, at 218–19 ("Macey argues that Congress is more likely to delegate political power to states when (1) states have established a system of regulation that federal law would disrupt, (2) wide variations in conditions makes a one-size-fits-all statute less than optimal, and (3) Congress wants to avoid responsibility for regulatory policies. Macey's model may be untestable; it may be much too difficult to ferret out the precise relationship between the vague notion of political support and a particular allocation of power in a regulatory statute. Nevertheless, at a minimum Macey offers a useful way to structure our thinking about the allocation of regulatory authority between federal and state governments.").

toxics regulation because a business would lose the opportunity operate if it moved its practice instead of substituting a safe chemical for a toxic chemical. Even if a business moved its manufacturing of a product to another state, it would lose the chance to do business with the regulating state because its products would likely be banned. This is one way in which state toxics law can actually drive industry reform: industries do not want to lose business in a state.[160] The recognition of businesses wishing to stay in operation is also another reason why California's alternative analysis law makes sense and is innovative: it encourages companies to use safer chemicals so that they may remain in business while still protecting people.[161]

VI. CONCLUSION

Lax federal toxics regulation has stimulated states into regulating toxics primarily to protect children and other vulnerable subclasses. Additionally, the state-level regulations can act as a driver for both federal laws and industry reform. However, a federal law that continues the same deficiencies as TSCA could require the same rigorous cost-benefit analysis, the lack of which invalidated a ban on asbestos in *Corrosion Proof Fittings v. EPA*. CSIA and CIC will likely not sufficiently protect children and vulnerable subpopulations because the definition of a safety standard is an unreasonable risk of harm, which has been interpreted by courts in the past to require a cost-benefit analysis.[162] Additionally, EPA may not consider a regulation to protect a vulnerable subclass or hot spot to be worth the cost to the entire country. With a federal law that will likely not sufficiently protect children and vulnerable subpopulations, state laws are still needed. State-level campaigns for protection from toxics are best situated to protect children because not all states have similar conditions necessitating the same stronger regulations and because different communities in different states are plagued by different cumulative effects. Additionally, CSIA and CIC do not require the EPA to undergo a cumulative effects analysis when completing a safety assessment for a chemical. Therefore, states are in the best position to regulate for the protection of children and vulnerable subclasses. The preemption scheme in the Safe Chemicals Act, which would allow state laws

160. Belliveau, *supra* note 119, at 378.
161. *See supra* Part III.B.
162. *See supra* notes 133–46 and accompanying text.

to continue regulating so long as they do not directly conflict with a rule for a toxic chemical issued by the EPA is therefore better suited to protect people from toxic chemicals.

THE APALACHICOLA-CHATTAHOOCHEE-FLTIN RIVER DISPUTE: ATLANTA VS. APALACHICOLA, WATER APPORTIONMENTS' REAL VERSION OF DAVID VS. GOLIATH

STEFFEN LOCASCIO

I. INTRODUCTION

The ACF River Basin consists of the Apalachicola, Chattahoochee, and Flint rivers.[1] This river basin has been the site of an ongoing legal battle between Alabama, Georgia, and

1. Roy R. Carriker, *Water Wars: Water Allocation Law and the Apalachicola-Chattahoochee-Flint River Basin*, University of Florida: Institute of Food Agricultural Sciences Extension, http://ufdcimages.uflib.ufl.edu/UF/00/09/92/89/00001/FE20800.pdf (last visited Oct. 17, 2014).

Florida since 1990. [2] This battle centers on the proper apportionment of water from the ACF River Basin. Severe drought throughout the 1980's, combined with the explosion of growth experienced by the city of Atlanta, and forced these three states to stake a claim for their respective interest in the ACF River Basin's water distribution.[3] The resulting complex web of litigation is ongoing with seemingly no end in sight.

Many of the core issues that ushered in the wave of litigation between these three states in 1990 still remain in dispute today.[4] The main concern of both Alabama and Florida is the threat that the city of Atlanta's consumptive needs pose to their respective usages of the ACF River Basin.[5] Florida and Alabama base these challenges on the assumption that Georgia should not have authorization to use the ACF River as the substantial freshwater supply for the city of Atlanta. In 1948, Atlanta was a much smaller place compared to the modern day metropolis that it has become. The Rivers and Harbors Act, adopted by Congress in 1946, gave the Army Corps of Engineers authorization to make improvements along the ACF River Basin.[6] The plan included a proposal for a dam and reservoir at the upstream Buford site. [7] Before any discussion of whether water supply would be a benefit of the project, Atlanta did not seem to place much emphasis on the Buford project as a part of its long term plan for providing water to its inhabitants. [8] In 1948, the mayor of Atlanta boasted that, "Certainly a city which is only one hundred miles below one of the greatest rainfall areas in the nation will never find itself in the position of a city like Los Angeles."[9] That statement has since proved to be ironic because of the hardships that Atlanta now faces in the realm of supplying water for its residents.

Over the years, courts have differed in opinion over whether water supply, most notably supply kept for disbursement to

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2. *Alabama v. United States Army Corps of Eng'rs*, 382 F. Supp. 2d 1301, 1304 (N.D. Ala. 2005).

3. Carriker, *supra* note 1.

4. Megan Baroni, *Lessons from the "Tri-State" Water Wars*, A.B.A. State & Local Law News, Vol. 35 No.2 (2011), *available at* http://www.americanbar.org/publications/state_local_law_news/2011_12/winter_2012/tri-state_water_war.html (discussing the 20 yearlong battle between these three compelling interest and describing each of the interests).

5. *Id.*

6. Memorandum from the U.S. Army Corps of Engineers on the Authority to Prove for Municipal and Industrial Water Supply from the Buford Dam/Lake Lanier Project, U.S. Army Corps of Engineers, 2 (June 25, 2012) (on file with author).

7. Baroni, *supra* note 4.

8. *Id.*

9. *Id.*

Atlanta, was part of the initial plan of the Buford dam project.[10] No matter what the verdict on that matter may be, there seems to be a historical lack of preparedness and planning on the side of Atlanta when it comes to their future water needs.[11] This problem may be exacerbated in the near future because Atlanta is set to far exceed water usage levels that were not expected until 2030.[12] Atlanta's need for water is enhanced by the fact that the Chattahoochee River and Lake Lanier watershed is the smallest in the country to supply a majority of the water needed in a metropolitan area.[13] Both Florida and Alabama continue to seek an outcome that fits their needs, and both continue to blame the state of Georgia for a lack of environmental awareness and conservation efforts.[14] The water wars between these three states will continue as long as the city of Atlanta continues to grow at such a fast pace without an extensive and successful plan to deal with their future water problems. The importance that a city the size of Atlanta has to the southeastern United States is obvious, thus a proposed plan must be able to accommodate its continued growth and prosperity, while also maintaining the ecological needs of the rest of the ACF River Basin.

This paper will describe the prior legal history between these three states over the water apportionment of the ACF River Basin. However, the main focus of this paper will be on the future discourse between Florida and Georgia. Because much of the current litigation only focuses on the use of water from the Buford dam project at Lake Lanier,[15] which constitutes only about five to nine percent of the ACF River Basin, it seems likely that the vast majority of the river basin will need to be addressed in some measure in the near future.[16] Shaping a compromise that can address a solution for the water usage of the entire river basin would be the smartest way to quell the water wars. The dispute between these states is centered on the growing water needs of

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10. *See In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d 1308, (M.D. Fla., 2009). *See also Florida v. United States Army Corps Eng'r*, 644 F. Supp. 3d 1160 (11th Cir. 2011).

11. Jody W. Lipford, *Averting Water Disputes: A Southeastern Case Study*, PERC Policy Series, Issue # PS-30, p.5 (Feb. 2004).

12. *Id.* at 5–6 (revealing that Atlanta had already approached their estimated 2030 water usage level; Georgia Environmental Protection Division says that the water supply for Atlanta is sufficient through 2030).

13. *Id.*

14. Alyssa S. Lathrop, *A Tale of Three States: Equitable Apportionment of the Apalachicola-Chattahoochee-Flint River Basin*, 36 Fla. St. U. L. Rev. 865, 892-94 (2009).

15. *Id.* at 876.

16. *Id.* at 878-81 (discussing that proper allocation could be decided by three different methods, with the likeliest being a water apportionment case in front of the Supreme Court or by Congress).

the greater Atlanta area, compared to the traditional needs of normal river flow for the town of Apalachicola. Normal flow levels are critical in order to maintain the environmentally rich Apalachicola Bay, which is home to one of the most fertile seafood industries in the United States.[17] This small fishing town has been waging water wars with the ever-growing city of Atlanta for nearly three decades. The dispute is a perfect case study on the debate between just how far we should be willing to accommodate humanity's modern needs when they threaten to exhaust an environmental treasure.[18]

Recent developments in the litigation between Florida and Georgia have made the likelihood greater for this dispute to be heard in front of the U.S. Supreme Court. This paper will discuss whether or not the U.S. Supreme Court will have standing to hear any further disputes between the state of Florida and Georgia. Reviewing previous equitable apportionment cases in front of the Supreme Court helps to gain insight into relevant factors that may make a difference in the ACF River dispute. One of the major problems with the ACF River dispute has been shortsightedness and lack of planning by each party involved;[19] so this paper will also focus on how these two sides are planning to conserve and use water, in order to better explain how this dispute will look in the predicable future. In order to contemplate future plans, a historical perspective on the steps already taken will be necessary to determine if future conservation is achievable.

Due to a history of unproductive interstate negotiations and legal outcomes, the main decision of this case should hinge on the recommendation by the Special Master that is appointed by the U.S. Supreme Court. The Master's recommendation, and the Courts willingness to rely on it, would be the best way to set a fair and informed legal precedent for the future usage of the ACF River Basin by Florida and Georgia. This recommendation should be shaped off of prior legal precedents in water apportionment that have stood the test of time. This recommendation should also focus on setting long term commitments to conservation efforts by both states, with a main focus on Georgia adopting future water sources to meet its consumption needs without further draining the entire ACF River Basin.

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17. Lipford, *supra* note 11 at 7 (noting that Apalachicola supplies 10% of the country's oysters).

18. *See Id.*

19. *See Id.* at 5–6 (discussing Atlanta's need for water and the ill-suited supply they currently use).

II. ACF RIVER DISPUTE PRIOR LITIGATION HISTORY

A. Initial Conflicts and the ACF River Basin Compact

Problems first arose when an extensive drought forced Atlanta to implement water-rationing strategies.[20] After the effects of this drought, and with an expected influx of an estimated 800,000 new residents over the next two decades, the city of Atlanta decided to work with the U.S. Army Corps of Engineers in a plan to withdraw around 529 million gallons of water per day from the Chattahoochee River in the Lake Lanier area.[21] In 1990, Alabama responded quickly to this proposed withdrawal plan, filing a federal suit against the Army Corps of Engineers Florida, which Florida quickly joined in order to protect its own interest in the ACF River Basin.[22] The initial dispute centered on water quantity as well as water quality.[23] Both of the states filing suits needed normal river flow. Alabama needed it to sustain its farming, industry, and hydropower, whereas Florida needed natural river flow to sustain its major seafood and oyster industry, located downriver in Apalachicola Bay.[24] The water quality issue centered on Georgia's pollution of the downstream water flow—any withdrawal of water would decrease water flow and cause the pollutants in the water to be less diluted once they reached downstream locations.[25] An agreement forged by the three states in 1992 began a five-year comprehensive study by the U.S. Army Corps of Engineers, a freeze of the water usage levels, and a period of negotiation for the three states to solve the dispute outside of a courtroom.[26] "In 1997, the three states [decided to] enter into the ACF River Basin Compact."[27] This agreement called for the states to further negotiate their interests in the ACF River Basin to find a proper means of appropriating the water.[28] On May 16, 2000, well before the set deadline of August 31,

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20. Dustin S. Stephenson, *The Tri-State Compact: Falling Waters and Fading Opportunities*, 16 J. Land Use & Envtl. L. 83, 86 (2001).

21. *Id.*

22. *Id.* at 87.

23. *Id.*

24. *Id.*

25. Stephenson, *supra* note 20 at 87-88.

26. *Id.* at 88.

27. Douglas L. Grant, *Interstate Allocation of Rivers Before The United States Supreme Court: The Apalachicola-Chattahoochee-Flint River System*, 21 Ga. St. U.L. Rev. 401, 402 (2004).

28. *Id.*

2003 when the negotiations were set to expire,[29] the state of Georgia submitted a request to the Army Corps of Engineers to enter into contracts for increased water withdrawals from Lake Lanier for the next thirty years.[30] Although this request was denied, it caused a divide in the negotiations between each party and eventually led Georgia to file suit, challenging the denial of its water supply request.[31] The filing of this suit led to many other legal disputes that mainly focused on Alabama and Florida joining sides to challenge Georgia and the Army Corps of Engineers on any proposed distribution of water from Lake Lanier for the city of Atlanta.[32] After the final date for negotiations expired, it was clear that the ACF River Basin Compact achieved minimal progress for these three states to find common ground in the water apportionment dispute. After negotiations broke down, this dispute would have to play out in the courtroom over the next decade.

B. Back and Forth Legal Battle

After the agreement between Georgia and the Army Corps was signed on October 2003, the D.C. District Court allowed Florida and Alabama to intervene in the matter.[33] This was followed by the Alabama district court granting a preliminary injunction that prevented the recent agreement from being fully implemented.[34] The D.C. District Court then approved the agreement in February of 2004, contingent upon the dissolution of the prior Alabama district court's injunction.[35] The D.C. District Court sided with the Army Corps of Engineers, ruling that they had the ability to divert water from hydropower generators—one of the original purposes of the Lake Lanier project—for storage purposes with the intent of providing water for the city of Atlanta.[36] Following dissolution of the Alabama district court's injunction,[37] the D.C.

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29. *Id.* at 402-03.

30. U.S. Army Corps of Engineers, *Supra* note 6 at 16.

31. *Id.* at 18 (discussing the federal suit, *Georgia v. U.S. Army Corps of Engineers*, as the beginning of the complex web of litigation over the corps disbursement of lake Laniers' water).

32. *See Alabama v. U.S. Army Corps of Eng'r*, 382 F. Supp. 2d 1301. *See also In Re Tri-State Water Rights Litig.*, 638 F. Supp. 2d 1308; *Florida v. U.S. Army Corps of Eng'r.*, 644 F. Supp. 3d 1160.

33. *Se. Fed. Power Customers, Inc. v. Geren*, 514 F.3d 1316, 1320 (D.C. Cir. 2008).

34. *Id.*

35. *See. Fed. Power Customers, Inc. v. Caldera*, 301 F. Supp. 2d 26, 35 (D.D.C. 2004) (decision came after injunction was ordered).

36. *Id.*

37. *Alabama v. U.S. Army Corps of Engineers*, 424 F.3d 1117, 1136 (11th Cir. 2005).

District Court entered a final judgment on March 9, 2006. This final judgment was reversed by the U.S. Court of Appeals for the D.C. Circuit.[38] On appeal, the District of Columbia Circuit stated that the reallocation of the storage space for Lake Lanier amounted to a major operational change that should require Congressional approval.[39] Georgia sought review of this decision in front of the United States Supreme Court, but the Justice Department recommended that the Supreme Court not grant review.[40] The Supreme Court denied Georgia's petition for review, thus declining to hear the case. [41]

The Judicial Panel on Multidistrict Litigation transferred the dispute to the Middle District of Florida and assigned the case to Judge Paul Magnuson. [42] Magnuson had prior experience presiding over complex water apportionment battles, having served as the presiding judge in the Missouri River litigation.[43] Judge Magnuson focused the case on the question of whether Atlanta had the right to rely on Lake Lanier as its primary source of water.[44] Georgia challenged Florida and Alabama's standing to bring suit, stating that they could not establish the necessary injury-in-fact requirement.[45] This challenge was rejected because Florida and Alabama brought sufficient evidence to support allegations that they were suffering harm caused by the diversion of water from the ACF River Basin to meet the water supply needs of Georgia.[46] Florida and Alabama argued that water supply was not one of the original purposes of the Buford Dam project, thus the Corps of Engineers needed Congressional approval for these types of changes to the operation of the dam.[47] The Florida District Court then noted that the Army Corps of Engineers and the municipal entities in the city of Atlanta began to "envision

38. *Geren*, 514 F.3d at 1325 (reversing on appeal due to lack of congressional approval).

39. *Id.*

40. Lathrop, *supra* note 14, at 873.

41. *Id.*

42. *In re Tri-State Water Rights Litig.*, 481 F. Supp. 2d 1351, 1353 (J.P.M.L. 2007).

43. *Id.*

44. Lathrop, *supra* note 14, at 873–74 (Judge Magnuson stated that this central question "may render other aspects of the case 'obsolete.' ") (footnote omitted).

45. *In re Tri-State Water Rights Litig.*, 639 F. Supp. 2d at 1340-41 (Georgia asserted that "there is no evidence that the Corp's support of water supply and recreation in Lake Lanier has resulted in any 'discernable reduction in flows downstream in Alabama or Florida.' ").

46. *Id.* at 1341-42. (court documents show that sufficient evidence was brought forward showing that low flows cause harm to wildlife in the Apalachicola river as well as "harm [to] navigation, recreation, …water quality and industrial and power uses [in the] downstream" area of the ACF River Basin).

47. *Id.* at 1321.

the water supply benefit as a storage and withdrawal benefit," at some point after the completion of the Buford dam project.[48] The district court looked to prior legislative history and concluded that water supply—more specifically water withdrawals from Lake Lanier—is not, and never was an authorized purpose of the Buford Dam project.[49] The court stated that because this usage was not one of the authorized purposes of the project, and because this usage constituted a major "operational change" under the Water Supply Act, the Army Corps of Engineers "was required to seek Congressional approval for those actions and its failure to do so renders the actions illegal."[50] The court set aside the Corps' actions because their failure to seek Congressional approval before following through with the changes to the project constituted an abuse of discretion.

The Middle District of Florida's decision was seen as a win for Florida and Alabama, with some people even hailing it as the end to the ACF River Basin water dispute.[51] The so-called "win" was short lived—in June 2011, the Eleventh Circuit reversed and remanded the 2009 District Court decision. The overruling of Judge Magnuson's 2009 order helped to prevent the cut off of water supplied to millions of people in the Atlanta metropolitan area.[52] The Eleventh Circuit Court of Appeals held that the Corps never took final action to reallocate storage from Lake Lanier to the city of Atlanta.[53] The corps contended that they had, "never made a formal reallocation of storage in the reservoir."[54] The court also decided that water storage was an original intended purpose of the Buford Dam project. The court used wording from the Newman Report, made in 1946 when the Army Corps of Engineers was planning the Buford Dam project, to show that under the original plan water storage for the city of Atlanta would be one intended use.[55] The Eleventh Circuit ordered a remand

48. *Id.*
49. *Id.* at 1346-47.
50. *Id.* at 1347
51. Lathrop, *supra* note 14, at 876 (footnote omitted).
52. Atlanta Regional Commission, *Tri-State Water Wars: 25 Years of Litigation between Alabama, Florida and Georgia*, ARC, *available at* http://www.atlantaregional.com/environment/tri-state-water-wars (last visited Oct. 17, 2014).
53. *In re MDL-1824 Tri-State Water Rights Litigation*, 644 F.3d 1160, 1184–85 (11th Cir. Fla. 2011).
54. *Id.* at 1181.
55. *Id.* at 1168–69 (the Army Corps project would divert water from the hydroelectric power sources for the city of Atlanta, but the Newman report stated other benefits for the city in order to justify such losses. The report expressed that any decrease in hydroelectric power from the Buford dam diversion would be outweighed by the benefit conferred upon Atlanta because of an "assured water supply for the city").

of the decision on this issue, with instructions for the Army Corps of Engineers to reconsider the plan and make a determination of its legal authority to operate the Buford Project in a way that would accommodate Georgia's water supply demands.[56] The court instructed the Corps to "complete its analysis of its water supply authority and release its conclusions" within one year of the decision.[57] This ruling put the ever-complex ACF River Basin dispute into more uncertainty and placed the power back into the hands of the Army Corps of Engineers to determine their legal authority in the matter.

C. Current State of the ACF River Basin Dispute

After the Army Corps agreement with Georgia was reestablished, the deadline set by the Eleventh Circuit Court of Appeals for July 2012 passed without any action by either side.[58] The Corps appears to be leaning in favor of Atlanta's call for greater water supply.[59] The Corp maintains that, "[i]t has always been apparent from the plain text of the Newman Report that the Corps proposed, and Congress authorized, a system that was expressly intended to 'ensure an adequate water supply for the rapidly growing Atlanta metropolitan area' downstream."[60] The Corps intends that they have, and always will, "operate[] the Buford project with this goal in mind."[61] Moreover, the Corps believes that Congress had a clear intention for this type of downstream use when the Buford dam project was approved;[62] relying on this reasoning would discredit any further arguments over whether or not the Army Corp of Engineers would be directly violating Congressional intentions described in the Newman Report.

Much of the most recent decisions and developments concerning the ACF River Basin dispute seem to be going in

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56. *Id.* at 1197.

57. *Id.* at 1205.

58. Atlanta Regional Commission, *supra* note 52.

59. Pema Levy, *Southeast Water Wars: Georgia winning over Alabama and Florida*, INTERNATIONAL BUSINESS TIMES (JULY 23, 2013), http://www.ibtimes.com/southeast-water-wars-georgia-winning-over-alabama-florida-1356799 (discussing the recent aim for Congress to block the decision to appropriate this water, with the Corps seeming to back giving the water to the city of Atlanta).

60. U.S. Army Corps of Engineers, *supra* note 6, at 27 (footnote omitted).

61. *Id.* (footnote omitted)

62. *Id.* ("[T]he Corps has discretion to adjust operations [of the Buford project] for all purposes…that could provide [for] greater downstream water supply" under Congresses approval of the Newman Report.)

Georgia's favor. Senator Jefferson Sessions of Alabama tried to add a provision into the Water Resources Development Act of 2013 ("WDRA") to limit Atlanta's usage of water.[63] Congress ultimately denied this provision in their 2013 enactment of the WRDA.[64] Some support has been garnered due to the conservation efforts made by the city of Atlanta since their 2000 request. These include the North Georgia Water Planning District, the Metro Water District Water Supply and Water Conservation Plan, and the Georgia Comprehensive Statewide Water Management Plan.[65] Although the battle has shifted in favor of Atlanta's needs, the dispute is far from over. Florida politicians have made recent attempts to get Congress involved; showing that Florida will do whatever it takes to stand up for its right to preserve a healthy and economically sustainable natural resource.[66]

Recently, Florida received some surprisingly positive news. The U.S. Supreme Court agreed to hear the current dispute between Florida and Georgia, against the U.S. Solicitor General's recommendation not to consider the case until the Army Corps of Engineers announces its updated plan for the ACF River system in 2017.[67] The Army Corps of Engineers and the state of Georgia responded by saying that Florida's suit was "premature" and the federal government should, "not get bogged down by Florida's litigation."[68] Florida's main argument centers on the reduced flow downstream into the Apalachicola Bay.[69] The key to the current lawsuit is Florida's allegation that Georgia is pulling 360 million gallons of water per day from the ACF River system.[70] Further, projections suggest that the daily amount of water being pulled from the ACF River will double by the year 2040, putting the current and future health of the river's ecosystem, including

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63. Levy, *supra* note 59.

64. *Id.*

65. Atlanta Regional Commission, *supra* note 52 (water conservation efforts put into place have decreased per capita water use by 27 percent since 2001, even though some of the drop is a by-product of recession).

66. Greg Bluestein & Daniel Malloy, *Latest phase of Water Wars plays out in Congress*, THE ATLANTA JOURNAL-CONSTITUTION, http://www.ajc.com/news/news/latest-phase-of-water-wars-plays-out-in-Congress (last visited Oct. 14, 2014) (Florida Governor Rick Scott pursuing "federal lawmakers to intervene" and Florida Representative Steve Southerland asking for "proper Congressional oversight" on the matter).

67. Bill Cotterell, *Water wars between Florida, Georgia advance at U.S. Supreme Court*, Reuters News, *(Nov. 3, 2014),* http://www.reuters.com/article/2014/11/03/us-usa-florida-oysters-idUSKBN0IN28420141103 (last visited Nov. 5, 2014).

68. *Id.*

69 Jeremy P. Jacobs, *Supreme Court will Review Fla.-Ga. dispute*, E&E News – Greenwire, *(Nov. 3, 2014),* http://www.eenews.net/greenwire/2014/11/03/stories/1060008284.

70. *Id.*

Florida's seafood industry, at risk.[71] The Supreme Court's review is progress towards a resolution between these states, but the solution should not be expected in the near future.[72] The factors that the Supreme Court will focus on to resolve this matter, and the way that each state has dealt with the strain on each of its respective water issues, will shape the outcome of this dispute. These factors will be discussed at length below.

III. IS WATER APPORTIONMENT LITIGATION THE ONLY RESOLUTION TO THIS ISSUE?

The logical answer to this question is no, but a water apportionment case before the Supreme Court may be the only way to solve the ACF River dispute, based on the history of unstable negotiations between these three states. There are two other possible resolutions to this problem: one being an interstate compact, the other a direct action by Congress to apportion the water between states.

Some scholars believe that an interstate water compact provides the most economically efficient method to resolve the dispute between Florida, Georgia and Alabama.[73] The three states attempted this route with the 1997 Apalachicola-Chattahoochee-Flint River Basin Compact, which basically was an agreement to negotiate.[74] However, the states failed to find any solution after several years of negotiation.[75] The three states not only failed to find a solution; the negotiation period also resulted in even more litigation and disputes than prior to the compact.[76] Georgia has never budged on its demand for sufficient water rights to maintain urban Atlanta's water needs, and neither has Florida backed away from demanding adequate downriver flows to preserve the water levels of the Apalachicola Bay.[77] This prior

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71. *Id.*

72. *Id.* (addressing the reality that the high court may not reach a resolution on the matter, "for months, if not years.").

73. *See* David N. Copas, Jr., Note, *The Southeastern Water Compact, Panacea or Pandora's Box? A Law and Economics Analysis of the Viability of Interstate Water Compacts*, 21 WM. & MARY ENVTL. L. & POL'Y REV. 697, 730–33 (1997) (discussing the economic advantages to finding common ground through an interstate compact).

74. J.B. Ruhl, *Equitable Apportionment Of Ecosystem Services: New Water Law For A New Water Age*, 19 J. LAND USE & ENVT'L L. 47, 50 (2003). *See* C. Grady Moore, *Water Wars: Interstate Allocation in the Southeast*, 14 NAT RESOURCES & ENV'T 5, 6–10 (1999) (regarding background history and origins of the ACF River dispute).

75. Grant, *supra* note 27, at 402-03.

76. *Id.*

77. *Id.* (towards the end of the negotiation period of the 1997 compact, Georgia and Alabama sought to address Florida's ecological concerns with a guaranteed minimum flow

history suggests that a compact would not be a successful way to solve the ACF River dispute.

Another option is for these three states to seek apportionment of the river's water through Congress. This is a rare method, and the inability of these states to negotiate in the past makes it less likely that Congress would get involved.[78] Congress has historically not been willing to get involved with sensitive matters between states.[79] There are political concerns at play because Congress does not want to take sides on such highly contested issues of importance.[80] Although this method would include the gathering of expert information to make an informed decision on the best uses of the ACF River Basin, the historical reluctance by Congress to get involved makes this method an unrealistic solution.[81]

Although these two methods are economically efficient and may allow for the proper experts to weigh in on the issue, the unwillingness of each of these states to find common ground renders these methods unusable. Bringing this dispute in front of the Supreme Court is likely the only way to rationally resolve this issue once and for all. With the recent news that the Supreme Court will hear the current litigation between Florida and Georgia, a water apportionment showdown between these two states seems likely. In order to properly analyze the potential outcome of this suit, it is crucial to look at the law behind water apportionment as well as the Supreme Court's jurisdiction over these matters. It is also important to consider preceding Supreme Court case law regarding water apportionment disputes.

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for the Apalachicola River. Florida sought natural flows and thus rejected this position, threatening to sue in the U.S. Supreme Court).

78. William Goldfarb, WATER LAW 52, 54 (Lewis Publishers 2d ed. 1988).

79. Carl Erhardt, *The Battle over "The Hooch": The Federal-Interstate Water Compact and the Resolution of Rights in the Chattahoochee River*, 11 STAN. ENV'T L.J 200, 212 (1992).

80. *Id.* (discussing the political concerns that voters of states not involve face as well as the concerns that taking sides in this dispute would strike down the concept that each state is in control of shared water resources).

81. *Id.*

IV. STATE WATER LAW AND SUPREME COURT JURISDICTION

A. Differences in State Water Law

There are two distinctly different doctrines of water apportionment between states: the Doctrine of Prior Apportionment and the Doctrine of Riparianism. Western states follow the Doctrine of Prior Apportionment, due in part to the dry ecological characteristics of the western United States.[82] Under this doctrine, once a user of water has acquired a certain water right, that right is superior to any water claims that emerge after.[83] The senior appropriator's use reigns supreme over more socially beneficial uses, even in times of environmental need such as a drought. [84] Prior Apportionment favors older users over more efficient users.[85] Water rights can be traded just like a commodity; but as long as the senior appropriator maintains its beneficial use of the water, that claim will be treated as the superior claim.[86] This benefit is usually at the expense of the downstream user seeking to gain access to the river flow.[87] Disputes arise easily under Prior Apportionment, and although they are simple to resolve because of the concrete nature of the doctrine, the resolution may not always be in the best interest of society.

Eastern states use the Doctrine of Riparianism.[88] This doctrine is based on the assumption that groundwater will always be available and dispersible to relevant users.[89] The theory is that all uses along a river are allowed as long as "they do not unreasonably interfere with other uses." [90] Riparianism was created under the belief that the eastern United States always received plentiful amounts of rain, and had an abundance of water to be dispersed to all interested users.[91] In order for this doctrine to work successfully, water must be plentiful and users of the river must not completely threaten other uses. Using

82. Lathrop, *supra* note 14, at 880-81.
83. Moore, *supra* note 74, at 6.
84. *Id.*
85. Stephenson, *supra* note 20, at 90.
86. *Id.*
87. Lathrop, *supra* note 14, at 881.
88. *Id.*
89. Moore, *supra* note 74, at 6.
90. *Id.*
91. Stephenson, s*upra* note 20, at 90–91.

this doctrine creates problems, both in times of drought,[92] and where a user is exhausting the particular resource beyond its sharable means.

The state of Florida differs from other eastern States because they implemented a hybrid system. Generally this hybrid system uses riparian rights as a basis, but also incorporates an administrative permitting process for new water users.[93] New permit applicants must meet a three-part test to be granted a water right.[94] This system combines riparian water rights with prior apportionment to find a proper balance between the two.[95] The Florida Water Resources Act of 1972 established this hybrid system.[96] The Resources Act also established state-level administration for water disputes to the Florida Department of Natural Resources or its successor agency.[97] This responsibility has since been transferred to the Florida Department of Environmental Protection.[98] The Department of Environmental Protection has essentially given all policymaking authority, as well as day-to-day management, to the five regional water management districts that make up the entire Florida Water Management System.[99] This delegation of power presents current and, more importantly, future issue regarding the ability for the state to enter into negotiations for interstate water compacts because these compacts face the hurdle of having to be approved by five different water districts, each of which have contrasting and conflicting water needs.[100] If the state of Florida intends to enter into serious interstate water negotiations, it should look into solidifying its intrastate water authority.

B. Supreme Court Original Jurisdiction

The likelihood of a water apportionment case between Florida and Georgia coming in front of the U.S. Supreme Court has increased with the recent news that the Supreme Court will

92. Moore, *supra* note 74, at 6.

93. Stephenson, *supra* note 20, at 92.

94. *Id.* (three-prong test consists of user proving that the use is defined as a reasonable beneficial use, the use does not adversely affect other prior users, and that the use is consistent with public use).

95. *Id.*

96. Ronald A. Christaldi, *Sharing the Cup: A Proposal for the Allocation of Florida's Water Resources*, 23 FLA. ST. U. L. REV. 1063, 1078–81 (1996).

97. *Id.* at 1073.

98. *Id.* at 1074.

99. *Id.*

100. *Id.* at 1075-76.

review the complaint. For the U.S. Supreme Court to hear a water dispute between Florida and Georgia, original jurisdiction must be properly established. Under Article III of the United States Constitution, the U.S. Supreme Court has original and exclusive jurisdiction over suits between states or where a state is a party.[101] The Supreme Court is the only court that can hear interstate water apportionment litigation between two or more states.[102]

The most recent litigation involving the ACF River dispute is between Florida and Georgia. The U.S. Supreme Court should have original jurisdiction under Article III. Once an original jurisdiction case is set to be heard by the U.S. Supreme Court, a Special Master is typically appointed to make certain factual findings, manage certain trial formalities, and to give a recommendation on the outcome of the case.[103] Special Masters are appointed directly by the Court and do not need any prior judicial experience to serve.[104] Although their effect on the outcome of the case differs based on the Court's interpretation of the facts and circumstances, Special Masters can have a profound impact on the decision making behind water apportionment rulings. This is especially true in cases where competing states' interests cannot be settled by simple negotiations.[105] The Special Master can intervene in these scenarios and formulate an informed decision that takes both sides' interests into account, but in the end formulates a smart plan that will apportion water in the fairest method. [106]In the current litigation between Georgia and Florida, a fair-minded Special Master could go a long way towards shaping an outcome that works for both sides.

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101. U.S. CONST. art. III, §2, cl. 1 (judicial power of the United States is extended "to Controversies between two or more States"); U.S. CONST. art. III §2, cl. 2 (Supreme Court has original jurisdiction in cases which a State is a party); 28 U.S.C §1251(a)(1) (2000) (Supreme Court has exclusive jurisdiction in suits "between two or more States").

102. Grant, *supra* note 27, at 403.

103. Anne-Marie C. Carstens, *Lurking in the Shadows of Judicial Process: Special Masters in the Supreme Court's Original Jurisdiction Cases*, 86 MINN. L. REV. 625, 627–28 (2002).

104. *Id.*

105. *Id.* at 662–63 (discussing the Master defining his role in the heavily contested water apportionment decision *New Jersey v. New York*).

106. *Id.* at 659–65 (in *New Jersey v. New York*, a dispute lasting an estimated 170-300 years was settled in part because of the recommendations by the Special Master; a recommendation that was based on balancing traditions kept by New York with honoring sovereign rights that were rightly attributed to the state of New Jersey).

C. Equitable Apportionment: The Method Used by the Supreme Court

The Doctrine of Equitable Apportionment is the primary method that the Supreme Court uses to deal with non-negotiable water rights disputes between states.[107] The Supreme Court endorses interstate compacts as the preferred method to solving apportionment disputes, but when this process is not possible, they tend to follow an ever-evolving apportionment method.[108] More recently, the Court has molded their use of the Equitable Apportionment Doctrine to force states to support their claim of interstate water rights through proof of concrete planning, as well as evidence of conservation efforts designed to make their usage more efficient.[109]

The first equitable apportionment case in front of the Supreme Court focused on crafting a rule that was based on sharing the available resources because each state had the right to use the interstate water.[110] The sharing rule has been used in the following cases regarding water apportionment, but the method of applying the rule has changed over time. The Supreme Court will defer to local law if each of the feuding parties follows the same method in deciding state water issues.[111] However, if the two states have different water laws, or if applying the local law will leave one party unfairly disadvantaged, the Supreme Court follows the Doctrine of Equitable Apportionment over other alternatives.[112] The factors that determine how the water should be equitably apportioned vary, and the methodology used by the Court to determine fair apportionment has changed over time, depending on the set of circumstances involved in the dispute.[113] Analyzing the types of factors previously used by the Supreme Court to determine fair apportionment of water will shed light on the factors that the Supreme Court may focus on in the upcoming litigation between Florida and Georgia.

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107. Erhardt, *supra* note 79, at 212.

108. A. Dan Tarlock, *The Law of Equitable Apportionment Revisited, Updated, and Restated*, 56 U. Colo. L. Rev. 381, 382–84 (1985).

109. *Id.* at 384.

110. Erhardt, *supra* note 79 at 212.

111. *Id.* at 213.

112. *Id.*

113. *Id.*

V. PRIOR EQUITABLE APPORTIONMENT DISPUTES IN FRONT OF THE SUPREME COURT

Kansas v. Colorado represents the first time that the Supreme Court extended its power to equitably apportion water in an interstate river dispute.[114] Kansas sued Colorado, seeking an enjoinment of Colorado's diversions along the Arkansas River, which caused a loss of downstream flow to Kansas.[115] The Court sided with Colorado, determining that each state had an equal right to use the river flow, and the irrigational use of the water by Colorado was a reasonable use under the Riparian Doctrine.[116] The Court established that, "each State stands on the same level as the rest."[117] They went on to rule that in disputes between two States where one State seeks to limit the rights of another, the Court must settle the dispute in a way that notices these equal rights, but "establishes justice between them."[118] The Supreme Court analyzed this case under the common law Riparian Doctrine, even though the States followed different laws regarding water rights.[119] The Court focused on the fact that Colorado was upstream and thus held the riparian rights to the stream if their uses were deemed efficient, compared to the injury caused to downstream Kansas.[120] The Court struggled to apply different State law doctrines to water apportionment disputes and thus chose to rely on common law, even though it was not the primary law of that region.

The Court used a basic cost-benefit analysis to determine the efficiency of both water uses.[121] Based on this analysis, the Court decided that Colorado's irrigation usage was efficient, and that interference with such usage to benefit Kansas would not be equitable.[122] The main factors to take away from this inaugural decision were that the Court focused on economic maximization in their Equitable Apportionment-Balancing Test, and due to this focus they effectively penalized Kansas for developing later than Colorado, even though the delay was due in part to a

114. Kansas v. Colorado, 206 U.S. 46 (1907).
115. Tarlock, *supra* note 108 at 385.
116. *Kansas*, 206 U.S. at 113–15 (1907).
117. *Id.* at 97.
118. *Id.* at 97–98.
119. Tarlock, *supra* note 108 at 385.
120. *Id.* at 386–87.
121. *Id.* at 386.
122. *Kansas*, 206 U.S. at 113–15 (1907).

drought that was suffered years earlier.[123] Because Colorado developed faster than Kansas, its potential loss of water affected a larger population and had greater economic impact. This was an issue of first impression for the U.S. Supreme Court; therefore much of the reasoning that justified the Courts decision was not clearly supported by prior standards of law used to resolve water disputes.[124] This early case was a landmark decision for water apportionment law, but the methods used by the Supreme Court were not clearly defined and needed to evolve through further decisions.

In 1922, Colorado found itself in another interstate water dispute, this time with the state of Wyoming. Wyoming brought an action to enjoin Colorado's proposed diversion of the Laramie River to a watershed in the Cache La Poudre Valley.[125] Colorado based its argument on the reasoning used in *Kanas v. Colorado*,[126] claiming that the watershed would be used for farming in a more developed area, as compared to the proposed use by Wyoming, therefore Colorado could accomplish more with the diverted water.[127] The Court was not willing to extend the same reasoning as in their prior decision, instead focusing on true equality amongst shared water rights.[128] The Court favored prior appropriations throughout the river when it chose not to ignore the needs of an arguably less efficient, or important, user in Wyoming.[129] Obviously, this is a different outcome from the first water apportionment decision, but in a sense it modernized the Court's apportionment method by ruling in favor of conservation efforts by new users. This method also dealt with addressing the needs of each side, not just the side that proved greater economic potential.

Nine years later, the Supreme Court heard a water apportionment dispute between New York and the downstream states of New Jersey and Pennsylvania. The downstream states sought to enjoin a plan by New York to divert water from the Delaware River, in order to meet the water demands of New

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123. *Id.* at 109.

124. *See* Tarlock, *supra* note 108 at 386 (clear inconsistency between cited case material stating that a riparian user could withdraw water for irrigation if it did not cause issues to a downstream user, and the Courts ruling basically contradicting this in favor of the upstream user).

125. Wyoming v. Colorado, 259 U.S. 419, 466–68 (1922).

126. Tarlock, *supra* note 108 at 395.

127. *Wyoming*, 259 U.S. at 468–69.

128. *Id.* ("In both States this is a purpose for which the right to appropriate water may be exercised, and no discrimination is made between it and other farming").

129. Tarlock, *supra* note 108 at 396.

York City.[130] New Jersey argued that the diversion would affect navigability of the water, alter salinity levels that would affect the Delaware Bay oyster industry, and would impact its citizen's rights to normal flow of downstream water.[131] This case represents the Supreme Court's most crucial decision between riparian eastern States. Although the decision turned on riparian water rights, Justice Holmes stated, in regards to the Court's method of appropriating water when compared to the different doctrines used in state water law, that, "the effort is always to secure an equitable apportionment without quibbling over formulas."[132]

The Supreme Court reasoned that New York's proposed diversion plan was not a prior use, so New York did not have a superior right over the downstream states.[133] The Court denied a complete injunction on the project that already had started, but the Court prevented New York from diverting any further water then they had originally planned.[134] This was one way to prevent future damages from occurring to the downstream users. Additionally, a water treatment plant was ordered to be built to monitor and treat all water flowing downstream from New York to prevent water contamination.[135] Finally, the Court gave the downstream states the right to inspect and oversee any dams or plants in connection with the diversion and downstream river flow.[136] The special master appointed in this case ruled that New York could divert over 160 million more gallons of water per day without "materially" affecting the river.[137] Typically, in Riparian Doctrine states, instream uses have been regarded as more important than consumptive use of the water.[138] The Supreme Court focused on this factor of riperianism when they controlled the base flow to the instream users.[139] The Court also preserved the health of the river and its ecosystem when it required that New York maintain water quality levels, and gave the downstream states the ability to perform oversight on any upstream projects.[140]

A subsequent dispute, *Nebraska v. Wyoming*, presented a further opportunity for the Supreme Court to evolve its standard

130. New Jersey v. New York, 283 U.S. 336, 341 (1931).
131. *Id.* at 343–44.
132. *Id.* at 343.
133. Tarlock, *supra* note 108 at 397.
134. *New Jersey*, 283 U.S. at 345–46.
135. *Id.* at 346.
136. *Id.* at 346–47.
137. *Id.* at 345.
138. Tarlock, *supra* note 108 at 398.
139. *New Jersey*, 283 U.S. at 345–46.
140. *Id.* at 346–47.

on what law to apply in water apportionment cases between similar water law states.[141] Nebraska brought suit against upstream Wyoming, which impleaded Colorado, over the need for natural flow for crucial irrigation areas in times of drought.[142] Although these states share similar water laws, it was clear that the application of prior appropriation might cause a substantial prejudice to one of the parties.[143] Although this ruling seemingly did not alter the Court's use of state water law as a basis for its decisions in apportionment cases, it did prove that state water law would not be the sole method used for analysis when it stands to severely prejudice another state.[144] This standard was more flexible and put greater emphasis on not affecting one state negatively at the benefit of another. Part of the flexibility in this ruling was that the Court considered factors that it had previously ignored. They stated that they would consider, "physical and climatic conditions, the consumptive use of water in the several sections of the river, the character and rate of return flows, . . . the extent of established uses, the availability of storage water, [and] the practical effect of wasteful uses on downstream areas."[145] This ruling seemed to apply more practical factors and less plainly rigid standards to the equity test. Ultimately, the Court entered an Equitable Apportionment decree that required the upstream users to maintain a certain minimum flow to satisfy the needs of the downstream user.[146]

The Supreme Court has been reluctant to interfere with congressionally approved water compacts. In the 1963 decision *Arizona v. California*, the Court was faced with whether or not Congress had the power to apportion water through the Boulder Canyon Project Act of 1928.[147] The Court found that Congress did apportion the flow of the Colorado River between these states.[148] The Court stated, "where Congress has so exercised its constitutional powers over waters, courts have no power to substitute their own notions of an equitable apportionment for the apportionment chosen by Congress."[149] This decision solidified the role that the Supreme Court takes whenever Congress has

141. Tarlock, *supra* note 108, at 399–400.
142. Nebraska v. Wyoming, 325 U.S. 589 (1945).
143. *Id.*
144. Tarlock, *supra* note 108, at 400 (the state law in this matter was the prior appropriation doctrine).
145. *Nebraska*, 325 U.S. at 618–19.
146. *Id.* at 628–634.
147. Arizona v. California, 373 U.S. 546 (1963).
148. *Id.* at 560–67.
149. *Id.* at 565–67.

made a decision to appropriate water. The ultimate decision in these cases is for the Court to determine whether or not Congress has directly appropriated water through one of the constitutionally afforded powers at their disposal.

Colorado was involved in another water dispute in 1982, this time with New Mexico. This dispute was centered on the Vermejo River, which originates in Colorado.[150] Most of the withdrawals were in New Mexico, until Colorado intervened and attempted to apportion withdrawals within the state.[151] In New Mexico, the main uses were through industrial, mining and ranching water rights holders.[152] The proposed diversion would be used for the Colorado Fuel and Iron Steel Corporation.[153] The Special Master ruled that under a strict rule of priority, Colorado would not be permitted to any diversions since the entire supply of the river is needed to fulfill the needs of the users in New Mexico, and those users held a senior right to the water flow.[154] However, the Special Master then changed course and applied the Supreme Court's Doctrine of Equitable Apportionment to the dispute.[155] Applying this standard, the master found that the proposed diversions "would not materially affect the appropriations granted by New Mexico for users downstream."[156]

The Court stressed the need to reasonably apportion the water between these states, especially due to the fact that water is scare in the western United States and must not be wasted in any inefficient manners.[157] Justice Marshall's opinion makes an effort to clarify the Court's goals when using equitable apportionment as a basis for water apportionment cases stating, "we have invoked equitable apportionment not only to require the reasonably efficient use of water, but also to impose on States an affirmative duty to take reasonable steps to conserve and augment the water supply of an interstate stream."[158] The Court centered the

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150. Colorado v. New Mexico, 459 U.S. 176 (1982).

151. *Id.* at 178–79 (Colorado Fuel and Iron Steel Corporation proposed a diversion of the water to a tributary to be used for industrial development. Four primary users in New Mexico opposed this apportionment and filed suit, seeking an enjoinment. Colorado filed an original complaint against New Mexico after the district court ruled in favor of the New Mexico parties because of their prior usage).

152. *Id.* at 178.

153. *Id.*

154. *Id.* at 180.

155. *Id.*

156. *Colorado*, 459 U.S. at 180.

157 *Id.* at 184–85; *see also* Washington v. Oregon, 297 U.S. 517, 527 (1936) (discussing equitable apportionment in western States stating, "[there] must be no waste . . . of the 'treasure' of a river . . . Only diligence and good faith will keep the privilege alive.").

158. *Colorado*, 459 U.S. at 185.

analysis around how each state should exercise its rights to the water of this interstate stream, which is a sharp contrast from prior analysis used by the Court that focused on what each state should do for each other.[159] The Court also used the Harm and Benefit Test to determine how the potential diversion would harm the downstream users in comparison to how much this diversion would benefit the upstream Colorado users.[160] The Court concluded that the rule of priority is not the sole criterion, and that the Doctrine of Equitable Apportionment is flexible and can extend to future uses that qualify as reasonable and non-detrimental.[161] The Court remanded the case to determine further facts on the potential conservation efforts that may be available to offset any harm to either side, and to determine the extent of the harm to the downstream user compared to the benefit received by the new, upstream use.[162]

On remand, the Supreme Court focused on evidence brought forth by both parties. New Mexico brought forward evidence showing potential economic harms that could be created by this diversion.[163] Colorado, which had the burden of proving that its diversion would not detrimentally harm existing users, did not bring forth any such evidence to support its claim.[164] Colorado only brought forth speculative future uses and unidentified conservation measures that did not prove any concrete benefit or plan.[165] This case did not alter the landscape of equitable apportionment cases in front of the Supreme Court, but it did set clear guidelines to the modern factors that the Court views as important. The case also showed the flexibility of the Equitable Apportionment Doctrine, while at the same time provided an example of the burden placed on new users to prove that their use will not detrimentally harm existing users. It can also be argued that Colorado's lack of a concrete plan showing the scheduled usage of the water, coupled with the lack of any conservation plan in place to limit harm to downstream users, hurt its chances of getting this diversion approved by the Court.[166] The outcome on remand was an example of the type of evidentiary

159. *Id.* at 185–87

160. *Id.* at 186 (prior case law supports the use of this test, *see Kansas v. Colorado*, where the Court determined that the great benefit to Colorado outweighed the detriment to Kansas).

161. *Id.* at 188–90.

162. *Id.* at 190.

163. Colorado v. New Mexico, 467 U.S. 310, 322 (1984).

164. *Id.*

165. *Id.* at 323–24.

166. *Id.*

threshold that new users must pass in order to satisfy the Court's Harm and Benefit Test.

VI. ANALYSIS OF THE MAIN FACTORS IN THE FLORIDA/GEORGIA DISPUTE

A. Legal Rights and Congressional Approval

The Supreme Court has stated in the past that, "all the factors which create equities in favor of one state or the other must be weighed."[167] Although this is a broad interpretation of the factors used by the Supreme Court in water apportionment cases, it shows that each case is unique and the Court is willing to consider any factors that help shed light on resolving the dispute fairly. Many of the modern factors that are important to the Supreme Court are on display in *Colorado v. New Mexico*. Established legal rights between the states are an important factor that also goes along with determining each of the disputing state's water laws.[168] Both Florida and Georgia primarily follow the Riparian Doctrine for their respective state water laws. This means that the Court will have to balance the rights afforded to each state rather than focus on prior usage rights as the main determination. Professor Dan Tarlock states, "the Court will seek to preserve the essential feature of the common law that riparian states are entitled to a substantial quantity of the base flow or lake level left in place to support a wide variety of non-consumptive uses."[169] Under this analysis, Florida would seem to be entitled to their claim of base flow to support their existing non-consumptive uses. However, the most recent litigation sided with the Army Corps of Engineers when they determined that the Buford Dam project was originally designed to provide water storage amongst its many functions.[170] As seen in prior case law, the Supreme Court does not intend to cast its own judgment in matters where Congress has spoken.[171] The Supreme Court must first determine whether Congress has specifically given consent to the Army Corps of Engineers to divert water from downstream under the Buford Dam project. If the

167. Colorado v. Kansas, 320 U.S. 383, 394 (1943).

168. Lathrop, *supra* note 14, at 891; *see also* Idaho. Ex. Rel. Evans v. Oregon, 462 U.S. 1017, 1025 (1983).

169. Tarlock, *supra* note 108, at 410.

170. In re MDL-1824 Tri-State Water Rights Litig., 644 F. 3d 1160, at 1184 (11th Cir. 2011)(overturning the Middle District of Florida's ruling that the Army Corps had not received Congressional approval to divert water and affect base water flows downstream).

171. *See* Arizona v. California, 373 U.S. 546 at 565 (1943).

Court believes that Congress has specifically given consent to the Army Corps and Georgia, it would be unlikely that the Court would intervene any further in this dispute. The difference between the Buford Dam project and the Colorado River Compact, the defining piece of legislation used to determine Congressional approval in *Arizona v. California*, is that the Buford Dam does not directly address the issue at hand, like the Colorado River Compact did. The Colorado River compact determined the apportionment of interstate river flows that were disputed later on so there did not need to be any further inquiry into whether or not the Congressional compact spoke on this matter.[172] The Buford project was put in place over a half century ago, and there remains a question that the Supreme Court must determine, of whether the project directly addresses the actions taken to divert water for storage purposes.[173]

B. Harm Caused vs. Benefit Received

In previous water apportionment litigation, the Supreme Court has used the harm versus benefit test, which takes many factual findings into consideration when determining whether a new user has the potential to detrimentally harm or alter the existing uses.[174] Once these potential harms are determined, the Court must decide whether the benefit of the new use outweighs the harm posed to existing uses. Some relevant factors used in this test include extent of established water uses, effect of wasteful uses on downstream areas, the potential harmful effects on upstream users if limitations were to be levied upon them, availability of storage water, extent that new users have plan in place for water usage, efficiency of any plans, and potential conservation efforts to limit harm on downstream users.[175]

For the past couple of decades, both Florida and Georgia have used the water in the ACF River Basin for the purposes currently disputed, but historically it is clear that one of the uses has been more established than the other. Since the early 1970s, Georgia has realized its increasing need for more water in the rapidly growing Atlanta area and has consistently sought ways to gain

172. *Id.*

173. *See* Lathrop, *supra* note 14, at 873–76 (discussing prior Middle District of Florida ruling, which held that water supply is not an authorized purpose of the Buford project).

174. *See* Colorado v. New Mexico, 459 U.S. 176 (1982); Nebraska v. Wyoming, 325 U.S. 589 (1945); Kansas v. Colorado, 206 U.S. 46 (1907).

175. *See, e.g.*, Colorado v. New Mexico, 459 U.S. at 188.

more access to freshwater.[176] It was during this time that they commissioned the U.S. Army Corps of Engineers to help create a long-term water supply plan, which concluded in the diversion of parts of both Lake Lanier and the Buford Dam.[177] Apalachicola has used the natural resources stemming from the ACF River Basin flow as the backbone of its community and economy for a much longer time than the Atlanta usage. From Florida's perspective, Atlanta's water supply was badly planned and now they have to pay the price for an emerging use.

The availability of stored water for both sides is another issue. Apalachicola cannot substitute any stored water for the natural flow and water level of the Apalachicola Bay. The bay's ecosystem relies on a healthy natural flow of water, and reduced flows would threaten the local seafood industry.[178] As for Atlanta, lack of an adequate freshwater source or location for water storage has placed them in this predicament. Atlanta has experienced a large growth in population for over three decades and the lack of available water was seen as an obvious barrier to the city's projected growth.[179] This is clearly an issue and it ties into the overall lack of planning with regards to the city of Atlanta's water supply. There is clear evidence that Atlanta has developed at a more rapid pace than its water supply can handle.[180] Georgia's population continues to grow, with an estimated population increase of fifty percent by the year 2030.[181] Additionally, by 2030, six out of every ten Georgia residents will live in Atlanta, creating even more of a need for Georgia to find ways to get Atlanta a major water supply.[182]

Even though most of the factors show critical shortsightedness by the state of Georgia, the lack of planning to accommodate the amount of people that have migrated to the Atlanta area may actually work in Georgia's favor. The Court may have a hard time

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176. CARRIKER , *supra* note 1, at 2–3.

177. *Id.*

178. Lipford, *supra* note 11 at 7 ("ecosystem preservation requires a pattern of flows that mimics nature's seasonal cycle and may conflict with other demands").

179. *Id.* at 5–6.

180. *See* JEREMY L. WILLIAMS, SOUTHERN LEGISLATIVE CONFERENCE, THE COUNCIL OF STATE GOVERNMENTS, WATER ALLOCATION AND MANAGEMENT: SOUTHERN STATES OUTLOOK 12–14 (2010). (Atlanta's current water usage is 652 million gallons a day, but they only withdraw around 440 million gallons a day from surrounding water sources and their water usage is set to increase by 53% by 2035. In 2007 Atlanta came within a few months of running out of water. On top of this northern Georgia's environmental characteristics include long and narrow river basins that make it hard for cities to get water without transferring it).

181. *Id.*

182. *Id.*

finding that the overall benefit received by maintaining a river ecosystem and small town economy outweighs the potentially catastrophic scenario where eleven million people in Atlanta are at risk of not having adequate water supplied to them.[183] This is the harsh reality for the town of Apalachicola. It is dealing with an ill-planned metropolis that is home to millions of people,[184] and this main factor will continue to persuade the Court no matter how many other factors are brought forward in support of preserving the natural flow of the ACF River Basin. The harms and benefits on each side are so grave that the Supreme Court may have to use a more amenable test to create more flexible recommendations. "Unlike the typical equitable apportionment case, Florida and Georgia are seeking different uses for the water."[185] The Court may rely heavily on other, more modern methods of encouraging water use efficiency and conservation of this precious natural resource.

C. Conservation Efforts

The Court could find some compromise and satisfy each state's needs by ordering Georgia to engage in more conservation efforts, as well as more water supply or diversion projects, in order to create some freshwater source planning for the future growth of Atlanta. The Court can look no further than Georgia's own statewide resources to find some relief for the city of Atlanta.[186] As a state, Georgia has extraordinary water resources; it just has an uneven distribution of water resources compared to its population.[187] Georgia can, and has, explored diverting their interstate resources towards the northern part of the State where most of its population resides.[188] If Georgia makes further efforts to conserve and divert the water it already has within its borders, this could be a crucial step towards convincing Florida that Georgia has some long-term plan in place that will not threaten to drain the ACF River Basin.

There is recent evidence that Georgia is putting more of an emphasis on water conservation efforts. In 2010, Georgia passed legislation to incentivize the conservation of water.[189] In its

183. *See* Lathrop, *supra* note 14, at 892.
184. *See* Baroni, *supra* note 4.
185. *See* Lathrop, *supra* note 14, at 890–91.
186. *See* Williams, *supra* note 180, at 13–14.
187. *Id.* (resources include 70,000 miles of stream; 40,000 acres of lakes; 4.5 million acres of wetlands; 854 miles of estuaries; and 49 inches of rainfall per year on average).
188. *See id.* at 14.
189. *Id.* at 20.

2012 water conservation report on Atlanta, the Chattahoochee Riverkeeper estimated that the city could reduce its future water demands, projected for the year 2035, by at least fifteen percent simply through conservation efforts that it put into place in 2010 and through compliance with the latest plumbing code. [190] Conservation efforts can also be increased through pricing water in a way that encourages efficient usage. [191] However, these conservation efforts may prove too little too late. Experts have even gone as far as to call Georgia's conservation efforts shortsighted in comparison to steps taken by other large, water-needy cities.[192]

When discussing the likelihood that conservation efforts will reduce the future water intake for the city of Atlanta, any discourse about the benefit of future reductions in water usage must take into account future increases in population. Atlanta has been a rapidly growing city for over four decades and current population projections predict that this trend will continue in the near future. [193] Although the latest U.S. Census numbers have been called "overly optimistic",[194] they follow a trend that does not seem to be disappearing any time soon.[195] Conservation efforts need to be increased if they want to offset the estimated 86% increase in Atlanta's population by 2050. For a city that is already facing grave water needs, conservation efforts need to be taken more seriously if Atlanta intends to provide water for its increasing population. Any court reviewing this dispute will need to weight the alarming water situation that is getting even worse in Atlanta with its history of bad planning and unwillingness to make significant conservation efforts or seek secondary water sources.

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190. *See* CHATTAHOOCHEE RIVERKEEPER, FILLING THE WATER GAP: CONSERVATION SUCCESSES AND MISSED OPPORTUNITIES IN METRO ATLANTA 2012 UPDATE, 7–8 (2012).

191. *See Id.* at 10,17 (tiered structure that takes peak demand times into account will result in residential customers looking to cut back when pricing makes efficiency worthwhile).

192. Jenny Jarvie, *Atlanta Water Use is Called Shortsighted*, L. A. TIMES (Nov. 4, 2007) http://articles.latimes.com/2007/nov/04/nation/na-drought4 (concerns for Atlanta being shortsighted include the fact that they have a rising population, no water, and no major conservation efforts in place to help with the issue).

193. *See* CHATTAHOOCHEE RIVERKEEPER, *supra* note 190, at 7 (Atlanta's population increase projections are estimated at 30% current population by 2025, 55% by 2035, and around 86% by 2050).

194. *See Id.* ("The Metro District's water demand projections also are overly optimistic with respect to population growth.").

195.Jacques Couret, *Metro Atlanta No. 9 in Population*, ATLANTA BUS. CHRON., (Jan. 3, 2013) *available at* http://www.bizjournals.com/atlanta/news/2013/01/03/metro-atlanta-no-9-in-population.html (discussing metro Atlanta's population in Jan. 2013 reaching 5,490,000); This number is greater than the Metro District's projection for 2015 showing that their number was not accurate and clearly not overly optimistic.

Another hurdle to any conservation effort is the Army Corps of Engineers. The partnership between the Army Corps and Georgia on the Buford Dam project has brought up even more issues in litigation over the history of the water usage for this project. The Middle District of Florida's ruling was made primarily with concerns over the Corp's refusal to take responsibility for its failure to conduct any type of environmental analysis over the last 20 years that they had been withdrawing water from the ACF River Basin.[196] The Army Corps' nonexistent environmental plan has contributed to the environmental degradation and resource misuse that has placed the ecological health of the ACF River Basin in jeopardy. Any further reallocation plan by both Georgia and the Army Corps should include an environmental plan to help mitigate the damage to the surrounding ecosystem.

Recently, the major oyster industry in Apalachicola has taken steps to augment the affected river flows by implementing conservation-based oyster harvesting.[197] These conservation efforts were implemented to help the oyster population recover from the effects of low river flows.[198] Included in these conservation efforts are the closing of commercial and recreational oyster harvests during the weekend. [199] Additional efforts include permanent closing of certain harvesting areas for the upcoming year, and lowering the daily harvest both recreationally and commercially per person.[200] These steps represent major changes for the area and the industry. For Apalachicola, this change may be the only way to save its valuable shellfish industry. Whether Atlanta is willing to take these types of major steps to find responsible ways to share the water supply will likely play a crucial role in upcoming water apportionment litigation.[201]

D. Prior Case Law Predicting an Outcome?

The Supreme Court decision in *Colorado v. New Mexico* gave more consideration to the conservation efforts displayed by the

196. *In re* Tri-State Water Rights Litigation, 639 F. Supp. 2d 1308 (M.D. Fla. 2009), rev'd 644 F.3d 1160 (11th Cir. 2011).

197. News Release, Fla. Fish & Wildlife Conservation Comm'n, *Conservation-based Oyster Harvest Changes Effective Sept. 1 in Apalachicola Bay*, (Aug. 28, 2014) http://myfwc.com/news/news-releases/2014/august/28/oyster-eo/.

198. *Id.*

199. *Id.*

200. *Id.*

201. Lathrop, *supra* note 14, at 892.

disputing party.[202] The standard set in that case gave states the duty "to employ 'financially and physically feasible' measures 'adapted to conserving and equalizing the natural flow.' "[203] The court then went on to clarify this by citing to the standard set out in *Wyoming v. Colorado*, which "lays on each of these States a duty to exercise her right reasonably and in a manner calculated to conserve the common supply."[204] Under this standard it is clear that Georgia would have a hard time proving that they have used this asset in a reasonable or calculated manner to conserve the common supply. The historical ineptitude of Atlanta to put a plan into place works against any defense, and a continuing reliance on diverting the ACF River's flow shows the unreasonable manner inwhich Atlanta has used this resource. Applying this duty to any potential decision by the Court, Florida would likely "win" guaranteed minimum flow down to the Apalachicola Bay.[205]

Another prior water apportionment case that could provide insight into any potential decision between Georgia and Florida is *New Jersey v. New York*. That case presents the only Riparian-based decision that the Supreme Court has made.[206] The dispute *in New Jersey v. New York* also presents a similar situation to the ACF River dispute where a metropolis upstream user seeks to divert water from a downstream user, potentially affecting ecosystem and industries from the loss of flow.[207] The Court found interesting ways to satisfy the demands of both parties. Applying a strict Riparian Standard, the Court concluded that all uses would be permitted if they did not substantially interfere with the other uses of the interstate river.[208]

The Court found that the possibility of further uses by upstream New York would substantially interfere with the downstream users. To cut down on some of this interference, the Court formulated solutions that would limit the upstream user. The Court assigned minimum downstream flows that would be monitored by the downstream states, and held that the upstream user would be responsible for maintaining the environmental and waste treatment to ensure the health of the river.[209] This

202. Colorado v. New Mexico, 459 U.S. 176 (1982).

203. *Id.* at 185 (quoting Wyoming v. Colorado, 259 U.S. 419, 484 (1922)).

204. *Id.* at 186; (quoting *Wyoming*, 259 U.S. at 484).

205. Lathrop, *supra* note 14 at 897 ("Unless the Court disregards ecological, conservation, and environmental concerns, Florida is likely to " 'win'…").

206. New Jersey v. New York, 283 U.S. 336 (1931) (indicating that both New Jersey and New York followed the Riparian Doctrine as their primary state water law).

207. *Id.* at 341–45.

208. *Id.* at 346–47; Lathrop, *supra* note 14, at 897.

209. *New Jersey*, 283 U.S. at 346–47.

was a revolutionary decision at the time because it stressed more modern environmental concepts. It also placed greater responsibility onto the infringing user by forcing them to have a plan in place to ensure the long-term ecological health for the river that they were taking advantage of. This decision could signal a possible solution that the Court should try and recreate to help alleviate this dispute between Georgia and Florida. Taking a special master's minimum flow level recommendation, and finding a way to hold Georgia responsible for further conservation, environmental health, and water storage efforts could help to remedy the dispute at hand. This does not seem too farfetched because the current ACF River dispute is similar both in state water laws, and factually when compared to *New Jersey v. New York*.[210] That decision may offer the only hope of shaping a true compromise based on previous litigation, and it could offer a key guideline for the Special Master to shape his recommendation on.

VII. SHAPING A COMPROMISE

Florida and Georgia are seeking different uses of the water, and that is what makes this water apportionment case difficult when compared to prior decisions.[211] The Supreme Court must also balance two very contrasting outcomes, one where the growth and developmental future of Atlanta is put at risk, and another where reduced flows threaten to wipe out an entire river ecosystem and thus put an end to one of the United States' major shellfish industries. Florida continues to contend that Georgia is simply asking that water be withheld from Florida while at the same time refusing to take actions that will mitigate its water problem.[212] Finding an end to a dispute that has been raging on for over three decades is not an easy task for the Supreme Court. A decision handed down by the Supreme Court may not be the best option for both sides. The first problem is that judges are not experts on the field of water apportionment. Even though special masters are appointed to make expert recommendations on the disputes, they only have limited judicial experience at best, and are usually given limited guidance or oversight on the matters by the Court.[213] Another issue with resolving this dispute in Court is that the dispute is very likely to resurface again in the future.

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210. *See Id.* at 341–45 (describing the case as involving a downstream user, New Jersey, trying to interfere with a metropolitan upstream use in New York).

211. Baroni, *supra* note 4.

212. Lathrop, *supra* note 14, at 894.

213. Carstens, *supra* note 103, at 628.

This dispute has already persisted for over three decades and the parties' involved want to find a solution that will end the dispute with a permanent solution.

Relying heavily on a balanced recommendation by the Special Master would be the best way to ease any of these concerns. The Master can bring expertise and research to the process, and can formulate a plan that meets the needs of both sides to ensure that this dispute does not resurface in the future. The Special Master should create a plan that would give Atlanta the recourses that it needs with the caveat that they must implement water conservation techniques, and seek permanent alternative sources of water. This would satisfy the requests of Georgia, while also judicially ordering Georgia to make long-term commitments to meet its water needs in a responsible way. The Master should also set a minimum flow requirement that will progress towards restoring the ACF River back to its normal flows. This would be a realistic way to help save the ecosystem and industry for downstream Florida. It may also be smart for the Master to allow for downstream Florida to monitor these flows in order to keep Georgia accountable to keep these minimum flows.[214] However, the truth remains that many of the previous cases on equitable apportionment have resurfaced down the road, and in some cases even created further disputes over the court ordered apportionment.[215] Litigation is costly, time consuming, and might not be a permanent solution to the ACF River dispute so other remedies may be better if these two states want to create a long lasting compromise.

If a balanced outcome cannot be found by the U.S. Supreme Court, the best remaining solutions to the problem may be either a bi-state water compact between Florida and Georgia, or a resolution set out by Congress. These states have gone down this road before with unsuccessful results, but these options may give each state the best chance to bring in experts and find creative ways to compromise on the issue. Congress has been unwilling to get involved, but they may be able to finally shed some light on the role of water storage in the Buford dam project.[216] Congress may be a better avenue because the water

214. *See New Jersey,* 283 U.S. at 347 (ordering downstream states to monitor the upstream user's commitment to water quality).

215. *See* Arizona v. California, 460 U.S. 605 (1983); Colorado v. Kansas, 320 U.S. 383 (1943); Kansas v. Colorado, 206 U.S. 46. 50–52 (1907) (describing the history of cases involving multi-state disputes over flow of the Colorado River); *see also* Nebraska v. Wyoming, 534 U.S. 40 (2001) (involving dispute over the flow of the North Platte River Basin); Nebraska v. Wyoming, 295 U.S. 40 (1935).

216. Bluestein & Malloy, *supra* note 66.

shortage for Atlanta is not going away anytime soon and other surrounding southern state leaders may want to find a solution before Atlanta attempts to find other, rather creative, ways to tap into surrounding sources of water.[217] Either congressional intervention or a bi-state negotiation could offers the best chances for these states to work out an equitable compromise. However, the prior unwillingness by Congress, Florida, or Georgia to intervene and make any progress towards a compromise makes these potential solutions unlikely.

As both Florida and Georgia await the upcoming review by the Supreme Court, the realities of the ACF River dispute remain. Atlanta's continued unwillingness to plan for its future and take responsibility for putting itself into the current water shortage remains a reality. The environmental and economic concerns for the ACF River Basin region also remain a reality. This dispute between conservation and over-development casts a shadow not only on the legal community, but also on society as a whole. Environmental concerns like the health of the ACF River basin continue to take the underdog role of David, and the real question is just how long can David hold off the ever developing Goliath?

217. Barnini Chakraborty, *Georgia Pols Ramp Up Campaign to Shift Tennessee Border, Siphon Water Supply*, FOX NEWS (Feb. 17, 2013) http://www.foxnews.com/politics/2013/02/17/water-wars-georgia-wants-slice-tennessee-river/ (reporting that Georgia was looking to challenge state border from 1818 survey in attempt to shift border north to gain access to the outer banks of the Tennessee River; with the state claiming that "unfriendly Indians" could have been the cause of the mistaken boundaries).