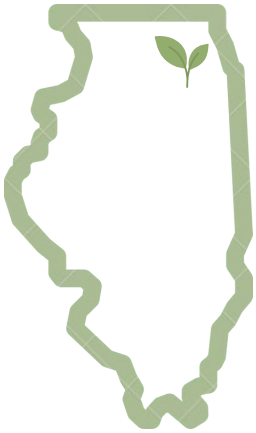

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INTRODUCTION

Jacob Levin
EDITOR-IN-CHIEF

This issue marks the 10-year anniversary of the *Chicago-Kent Journal of Environmental and Energy Law* (JEEL). In the 1980s, Chicago-Kent developed one of the first certificate programs specifically designed to specialize in the study of environmental and energy law. This program differed from others by exposing students to both foundational environmental regulatory issues as well as energy law and policy. In 2010, the program took another step forward by creating JEEL, a student run journal providing a major source for environmental and energy scholarship. JEEL has since been Chicago's only environmental-specific law journal and the longest-running in the Midwest. In the last decade, JEEL has covered topics ranging from offshore wind energy and the domestication of wild animals to protecting children from environmental harm and beaches from rising sea levels. While located in Chicago, the *Journal* has made it a priority to publish scholarship about environmental law and policy issues from not just a local level, but from a national and global level as well.

This decade has been one of tremendous growth for JEEL. Specifically, this year we focused on our growing online presence. First, we increased our online presence by ensuring our previous and current publications will be accessible not just on LexisNexis, but also Westlaw and HeinOnline. Second, the JEEL Blog was improved and expanded by providing bi-weekly, consistent discourse on environmental issues happening across the region, country, and world. Third, JEEL conducted a complete overhaul of our website and social media presence, allowing for easier navigability and sharing of information like the JEEL blog through tools such as LinkedIn.

This year has not been one without challenges. In 2020, the world was ravaged by the novel coronavirus-19. As a student-run journal, this virus has had not just a significant impact on us and our fellow students at Chicago-Kent but at law schools across the world. I would like to thank my extraordinary editorial board for their hard work, dedication and perseverance. Without them, JEEL would not have been able to accomplish all that it did this year. I would also like to thank JEEL's faculty advisor, Professor Keith Harley, for his leadership and guidance throughout the publication process and my time at Chicago-Kent. Lastly, I would like to thank JEEL's previous Editors-in-Chief for giving me the tools to succeed and for inspiring me to take this journal to new heights. It has been a privilege to serve as the Editor-in-Chief for JEEL's 10-year anniversary publication and I look forward to seeing its continued success in the many years to come.

HEALTHY ENVIRONMENT, HEALTHY MIND: CONSTITUTIONALLY GUARANTEEING CHILDREN THE RIGHT TO A HEALTHFUL ENVIRONMENT

Sarah Hyde[*]

In 2018, New Mexico's focus on child wellbeing drastically shifted after a district court judge held that public education was unconstitutionally inadequate for many of the state's children. However, the state's focus on other aspects of child wellbeing, such as the impact of environmental contamination on child development, is still lacking. As federal environmental regulation and enforcement become scarcer, states are forced to develop their own innovative solutions in order to protect future generations from environmental harms. States are better served to protect children because they are familiar with their communities' specific strengths and needs. Moreover, while legislative reform is always necessary, judicial action can spur powerful waves of change. State constitutions are a crucial and underutilized tool in developing new rights to better protect classes of people without special protections granted by the federal government. Using Due Process and Equal Protection claims, litigants can expand state definitions of liberty to advocate for new rights to protect children's growth and futures. Essentially, if a state's children have a fundamental right to adequate education, the constitution should give children the right to grow in a healthful environment that supports learning. This article primarily relies on New Mexico as an example, but all concepts can be applied to states with similar constitutional provisions.

INTRODUCTION

For years, New Mexico has failed in protecting its future generations. From children's health to public education to food insecurity, New Mexico annually ranks among the worst states in the county.[1] However, advocates and public officials recognized these trends and placed specific focus on

[*] University of New Mexico School of Law Class of 2021. She would like to thank Professor Clifford Villa for inspiring her to study the intersections between constitutional rights and environmental justice and encouraging her to think broadly and creatively. She would also like to thank Dr. Ruth Etzel for her cross-disciplinary ideas and contributions.

[1] In 2019, the Annie E. Casey National Kids Count ranked New Mexico as the worst state for child wellbeing. New Mexico ranked 50th in education, 48th in health, 50th in family and community, and 49th in economic well-being. *New Mexico's 2019 Kids Count Profile*, N.M. VOICES FOR CHILDREN (Jun. 2019), https://www.nmvoices.org/archives/13018 [https://perma.cc/XLL9-CWD6].

educational outcomes in recent years. In 2018, former District Judge Sarah Singleton held in the landmark case known as *Yazzie v. State* that public education systems in New Mexico were unconstitutionally failing their students, especially those who identify as Native American, English Language Learners, economically disadvantaged students, and those with unique learning needs.[2]

However, public education alone does not predict children's future ability to thrive. Ultimately, to protect future generations, states must recognize that all aspects of development are connected. States' priorities should be on children's basic needs and ensuring these children have access to things such as food, shelter, and a healthy place to grow with clean air and water. For this reason, this article argues that environmental health and wellbeing for children is a state priority that deserves higher rank. A healthy environment to grow up in is like the foundation of a house; it affects children's ability to thrive in school, live a healthy life, and develop in ways that influence lifelong outcomes. Essentially, if children cannot drink water, play in the dirt, or breathe without contaminants invading their bodies, they will never learn, study, play, or work to their full potential.

The environment is often defined broadly in relation to human experiences. One definition of the environment frequently used by activists is "where we live, work, play, learn, and pray."[3] Thinking of the environment in this intersectional framework highlights how environmental safety does more than keep children healthy; it influences physical and cognitive development, therefore impacting a child's ability to learn, grow, and contribute to the greater community.[4] The relationship between the quality of a child's environment and their ability to learn is not a novel idea. Medical professionals began to see relationships between the environment and child wellbeing decades ago, even though child development is a fairly new area of research.[5] A leading expert on this connection is Mount Sinai Medical School's Dr. Philip Landrigan, who originally argued that

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[2] Yazzie v. State, No. D-101-CV-2014-02224, slip op. at 70 (N.M. 1st Jud. Dist. Ct. July 20, 2018) (consolidated with Martinez v. State, No. D-101-CV-2014-00793, whereby plaintiffs contend a lack of sufficient means to receive a proper education for Native American, Hispanic, and English Learner students) https://www.maldef.org/wp-content/uploads/2018/11/2018-07-20d-101-cv-2014-00793_Decision_and_Order-1.pdf [https://perma.cc/HC7W-K957].

[3] Eileen Gauna, *El Día de Los Muertos: The Death and Rebirth of the Environmental Movement*, 38 ENV'T L. 457, 466 n.55 (2008).

[4] Mia Hammersley, *The Right to a Healthy and Stable Climate: Fundamental or Unfounded?*, 7 ARIZ. J. ENV'T L. & POL'Y 117 (2017).

[5] *See, e.g.*, Major Thomas F. Zimmerman, *The Regulation of Lead-Based Paint in Air Force Housing*, 44 A.F. L. REV. 169 (1998).

environmental justice is inherently child justice.[6] According to Dr. Landrigan, all leading causes of child mortality, including asthma, birth defects, preterm birth, neurodevelopmental disorders, brain cancer, and obesity, can be a result of growing up in an unhealthy environment.[7] Moreover, because of industrialization and rapidly developing technology, children today are at a far greater risk of exposure to toxic chemicals compared to fifty years ago. Toxic industry materials are now frequently found "in air, food, water, homes, schools, and communities."[8] Therefore, many children are exposed to environmental hazards on a daily basis, whether the exposure is occurring from the air at home, the water at school, or the soil at the nearby park.

The state of New Mexico acknowledges that environmental hazards disproportionately affect certain members of communities, including children. The state constitution includes a provision stating:

> The protection of the state's beautiful and healthful environment is . . . of fundamental importance to the public interest, health, safety, and the general welfare. The legislature shall provide for control of pollution and control of despoilment of the air, water, and other natural resources of this state, consistent with the use and development of these resources for the maximum benefit of the people.[9]

In fact, New Mexico is not alone in recognizing the need for environmental wellness in its state constitution. Apart from New Mexico, forty-one states include some mention of the environment in their constitution, with provisions ranging from declarations of a right to statements placing public policy responsibility on legislatures.[10] However,

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[6] Philip J. Landrigan et al., *Environmental Justice and the Health of Children*, 77 MT. SINAI J. MED. 178, 179 (2010) (For more on Dr. Landrigan's work, see his contributions to the *Yoss* litigation, which arose after numerous children who lived near a smelter in Idaho were seriously injured by lead poisoning). *See also* CLIFFORD J. VILLA ET AL., ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION 27 (3rd ed. 2020); Bradley Dean Snow, Living with Lead: An Environmental History of Idaho's Coeur D' Alenes, 1885-2011(April, 2012) (Ph.D. dissertation, Montana State University) http://www.montana.edu/history/documents/papers/2012B.Snow_Dissertation.pdf [https://perma.cc/RA2Z-MQQG].

[7] Landrigan, *supra* note 6, at 179. *See also* Villa, supra note 6.

[8] Landrigan, *supra* note 6, at 180.

[9] N.M. CONST. art. XX, § 21.

[10] Robert J. Klee, *What's Good for School Finance Should be Good for Environmental Justice: Addressing Disparate Environmental Impacts using State Courts and Constitutions*, 30 COLUM. J. ENV'T L. 135 (2005).

rarely are environmental health, safety, and wellbeing given the same legal weight as rights such as education that are recognized as fundamental in constitutions.

Thus, this article examines how states that do not identify environmental safety as a right, such as New Mexico, are failing their future generations. This article begins by identifying why new state litigation strategies in the environmental context are necessary. Next, it provides an overview of environmentally focused constitutional law litigation in other states. Finally, it proposes new solutions and analyzes potential roadblocks. By imagining a new fundamental right, this article introduces litigation routes that may create change as effectively as education funding litigation. In states where there is an explicit constitutional right to education, environmental health and safety should also be included as a constitutional right because education and environmental health are equally crucial to children's development and future outcomes. This article argues that to establish environmental health as a constitutional right like public education, litigants must assert that environmental health is both (1) a substantive Due Process right under the penumbra of the constitution's inherent rights provision, and (2) an Equal Protection right under the state's Equal Protection clause.

I. A NEED FOR NEW LITIGATION STRATEGIES

In this political arena, innovative solutions are essential to obtain environmental justice for younger generations. With federal enforcement declining, state action is more necessary than ever.[11] Moreover, state action must take a more pragmatic approach than waiting for local environmental departments to solve the problem. Agency failures at both federal and state levels highlight the need to view environmental health in a new paradigm.

A. Federal Failures

> "My inability to consistently exercise outdoors due to asthma has made it hard for me to get in shape and stay physically healthy, which has other adverse health effects. I am overweight and I do not feel strong in my body as a result. My immune system is also weaker from my increased incidence of asthma and my resulting overweight and I worry about my longer-term health and my ability to prevent disease through exercise, like heart disease or diabetes. [As a result

[11] *Civil Cases and Settlements*, U.S. ENV'T PROT. AGENCY, https://cfpub.epa.gov/enforcement/cases/ [https://perma.cc/SFU5-423T] (last visited Mar. 8, 2020, 10:02 AM).

> of] particularly bad asthma attacks, I develop bronchitis-like coughs, which regularly cause me to miss multiple weeks of school at a time, each school year."[12] Nicholas V., 17-year-old Colorado resident and plaintiff in *Juliana v. United States*.

Federal failures to protect children are numerous.[13] For example, students in Flint, Michigan, are still struggling to overcome the neurological effects of lead poisoning: "the percentage of the city's students who qualify for special education services has nearly doubled, to 28 percent, from 15 percent the year the lead crisis began, and the city's screening center has received more than 1,300 referrals since December 2018."[14] In Montana, preschool students were evacuated from their building in 2019 after investigations revealed "asbestos on surfaces [of classrooms], in one case 80 times higher than a federal cleanup threshold for residences."[15] Diseases related to asbestos typically do not develop for about fifty years after exposure. Because of this, it is difficult to determine whether the exposure will affect the children, but trends show high likelihoods of serious diseases later in life.[16]

Another way the federal system fails is through lacking adequate air pollution regulation. In the U.S., "pediatric asthma results in 14 million missed days of school each year."[17] Heightened asthma rates occur in both

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[12] Decl. of Nicolas V. in Supp. of Pls.' Urgent Mot. for Prelim. Inj. ¶¶ 6-7, Juliana v. United States, 949 F.3d 1125 (2018) (No. 18-80176), https://www.ourchildrenstrust.org/court-orders-and-pleadings (choose "Declaration of Plaintiff Nicolas V.") [https://perma.cc/977Z-MRRZ].

[13] This does not come as a surprise, as the Trump administration has shown blatant disregard for children's health and the environment in recent years. In 2018, Trump placed Dr. Ruth Etzel, the head of EPA's Office of Children's Health, on leave. Telephone Interview with Dr. Ruth Etzel, Director, EPA Office of Children's Health (Mar. 20, 2020).

[14] Erica L. Green, *Flint's Children Suffer in Class After Years of Drinking the Lead-Poisoned Water*, N.Y. TIMES (Apr. 1, 2020), https://www.nytimes.com/2019/11/06/us/politics/flint-michigan-schools.html [https://perma.cc/GF4P-CSQ6].

[15] Keila Szpaller, *University of Montana Finds Asbestos in Second Child Care Center*, MISSOULIAN (Feb. 19, 2019), https://missoulian.com/news/local/university-of-montana-finds-asbestos-in-second-child-care-center/article_72d4dc88-776b-573a-86d9-926569bcd442.html [https://perma.cc/3JDU-UU2Q].

[16] *Id.*

[17] Ruby Pawankar, *Allergic Diseases and Asthma: A Global Public Health Concern and Call to Action*, WORLD ALLERGY ORG. J. 7, 1-3 (2014). The number is likely greater than 14 million because proving causation in the environmental context is often difficult. According to Dr. Ruth Etzel, head of EPA's Office of Children's Health and professor of Epidemiology and children's environmental health, there is a stark disconnect between causation in the Epidemiological context and legal context. While attorneys and judges are focused on proof, Epidemiology does not use the word proof since there are so many compounding factors that can contribute to a cause. Dr. Etzel advocates for a paradigm

rural communities, often due to pesticides or dust, and in urban communities, often due to industrial pollution and high levels of smoke and emissions.[18] Each of these illustrate how the federal government alone cannot protect children from environmental hazards. No child should be put in a situation where they frequently miss activities because of asthma, spend years worrying about future cancer risks, or need extra academic help as a direct effect of drinking contaminated water.

B. State Failures in New Mexico

> "When I found out the school I teach at had lead in its water, it made me feel like the [agencies involved] needed to take the proper steps to test every school and really fix the problem. Our reading and math scores are so low as it is, so I really hope this problem did not impact our kids because there can be lasting detrimental effects on top of everything else they have to go through."[19] Lori Bourque, Reginald Chavez Elementary School, Albuquerque, New Mexico.[20]

Considering federal patterns, it is no surprise that in a poverty-stricken state like New Mexico, there is an abundance of environmental issues that federal and state agencies have failed to adequately address. In 2019, many public elementary and middle schools in Albuquerque that were built before 1990 had higher levels of lead in water than federal regulations permitted.[21] Lead was found in water fountains, bathroom sinks, and classroom sinks.[22] Young children consumed water from each of these sources for years, and teachers expressed their concerns that the proposed solutions are impeding on learning time. One elementary school teacher explained "there are five water fountains in [the school] that students can now drink from, with two of them having water bottle dispensers. 'On the second day of school, there was a line of three classes waiting to get water and refill water bottles at one

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shift in this area of law; legal structures must do better to catch up to the forever changing social science areas of study. Telephone Interview with Dr. Ruth Etzel, *supra* note 13.

[18] Pawankar, *supra* note 17.

[19] In 2019, 75% of fourth graders were not proficient in reading and 80% of eighth graders were not proficient in math. N.M. VOICES FOR CHILDREN, *supra* note 1.

[20] Telephone Interview with Lori Bourque, Speech and Language Pathologist, Reginald Chavez Elementary School (Apr. 3, 2020).

[21] Although research findings highlight that any traces of lead in water sources can be consequential, the federal regulations are still higher than zero. 40 C.F.R. § 141.11 (2001).

[22] Shelby Perea, *Teacher*: *APS Fixes for Lead in Water Fall Short*, ALBUQUERQUE J. (Aug. 18, 2019, 12:05 AM), https://www.abqjournal.com/1355223/concerns-remain-after-aps-claims-lead-in-water-fix.html [https://perma.cc/K7QT-FCP2].

of the water fountains.'"[23] According to the teacher, the contaminated water sources were not fixed, but rather they were designated as "handwashing only."[24]

To address this issue, the New Mexico Environment Department urged schools to instruct parents to send their children with a reusable, filled water bottle each day. This solution ignores the realities the low-income state faces. A quarter of children in the state live in a food insecure household, so their families likely do not have the resources to purchase a reusable water bottle for them.[25] In fact, many children in the state may not have any access to clean drinking water when they are not in school, their tap water at home could be even more polluted, or they may not have running water.[26]

Children in rural parts of the state are being harmed by environmental hazards as well. In Southeastern New Mexico, multiple communities near air force bases are struggling to combat poly-fluoroalkyl substance ("PFAS") contamination in the groundwater. These toxic chemicals were used at Cannon and Holloman Air Force bases in firefighting foam until 2016, and communities' livelihood and public health are now being threatened.[27] The toxic plume is slowly spreading across the Ogallala aquifer, the largest aquifer in the nation, which spans 174 thousand miles and eight states.[28] Dairy farmers in Curry County, New Mexico, have literally watched their incomes go down the drain. In an already low-income county, families are suffering after dumping thousands of gallons of cow milk per day and euthanizing thousands of cows with the chemicals in their systems.[29] To date, the Air Force has been uncooperative in efforts to clean the spreading plume, even though experts warn that exposure to PFAS can increase the chances of testicular, kidney, and thyroid cancers.[30]

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[23] *Id.*

[24] *Id.*

[25] *Health Indicator Report of Food Insecurity*, N.M. DEP'T HEALTH (Apr. 29, 2019), https://ibis.health.state.nm.us/indicator/view/FoodInsec.Overall.Year.NM_US.html [https://perma.cc/ZC2P-R27N].

[26] Marisa DeMarco, *Pajarito Mesa Residents Fight to Keep Their Homes*, KUNM (Apr. 12, 2020, 2:02 PM), https://www.kunm.org/post/pajarito-mesa-residents-fight-keep-their-homes [https://perma.cc/BS8V-SXQN].

[27] Amy Linn, *Groundwater Contamination Devastates a New Mexico Dairy – and Threatens Public Health*, N.M. POL. REP. (Feb. 19, 2019), https://nmpoliticalreport.com/2019/02/19/groundwater-contamination-devastates-a-new-mexico-dairy-and-threatens-public-health/ [https://perma.cc/29T9-TN2U].

[28] *Id.*

[29] *Id.*

[30] Kendra Chamberlain, *'Everyone is Watching New Mexico': Update Shows No Progress on PFAS Cleanup*, N.M. POL. REP. (Nov. 7, 2019), https://nmpoliticalreport.com

In the Navajo Nation, uranium contamination from mining sites continues to cause a multitude of health problems, even though the mining facilities have not operated for forty years.[31] While normal amounts of uranium found in the ground are approximately three milligrams per unit, levels at contaminated sites in Western New Mexico are far higher.[32] Uranium levels in the Northeast Church Rock Mine area were almost seventeen milligrams per unit in 2013, and levels near the Red Water Pond Road area were at a soaring thirty-two milligrams the same year.[33] Members of the Navajo Nation are extremely at risk of health issues resulting from uranium exposure. Contamination can enter one's body through breathing or eating, can be absorbed through the skin, and can be transferred through the placenta.[34] Effects on fetuses are especially alarming, since Native American women historically experience the highest rates of hypertensive disorders, preeclampsia, and gestational diabetes among pregnant women in the United States.[35] Data is lacking in terms of birth outcomes and uranium exposure, but experts continue to demonstrate that exposure increases miscarriages, stillbirths, and birth defects.[36] Birth defects include cleft lips and palates, chromosomal abnormalities, and changes in membrane structures.[37]

Additionally, uranium frequently settles in the lungs and kidneys, so rates of cancer in those organs are heightened as well.[38] In recent years, the Environmental Protection Agency ("EPA") has initiated massive site clean-up projects to lessen the impacts of uranium, but an end to this work is not in sight as the metal continues to travel deeper into the ground.[39] In a community where electricity and water are not guaranteed, schools are

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/2019/11/07/everyone-is-watching-new-mexico-update-shows-no-progress-on-pfas-clean-up/ [https://perma.cc/5QSY-CCBM].

[31] Erin Klauk, *Human Health Impacts on the Navajo Nation from Uranium Mining*, MONT. STATE U., https://serc.carleton.edu/research_education/nativelands/navajo/humanhealth.html.

[32] *Id.*

[33] Chris Shuey et al., Panel Presentation at the Tribal Lands and Environmental National Forum: Environmental Health Research on the Navajo Nation: Navajo Birth Cohort Study (Aug. 13, 2013) (presentation available in the Northern Arizona University ORCA Database), https://www7.nau.edu/itep/main/iteps/ORCA/6016_ORCA.pdf.

[34] *Id.*

[35] *Id.*

[36] *Id.*

[37] *Id.*

[38] *Id.*

[39] Jere Millard, et al., *The Church Rock Uranium Mill Tailings Spill: A Health and Environmental Assessment Summary Report*, N.M. ENV'T IMPROVEMENT DIV., HEALTH AND ENV'T DEPT. (Sept. 1983), https://semspub.epa.gov/work/06/1000720.pdf [https://perma.cc/ME3E-X8VF].

lacking resources, and food deserts are rampant, children are faced with yet another barrier: physical, cognitive, and developmental challenges as a result of a century-old industry.

C. Decentralization of Environmental Litigation

Environmental regulation can function in two paradigms. "One is decentralization - moving decision making from large federal bureaucracies to the private sector or to smaller units of government. The other is to streamline the federal regulatory process – trying to perform the proverbial organizational task of 'teaching the elephant to dance.'"[40] Decentralization is advocated for in a variety of contexts and is often most supported by legal scholars grounded in federalist ideals.[41] Additionally, in today's political arena, many advocates from both sides of the aisle are arguing that decentralization may be a method to make environmental enforcement more successful.[42]

Decentralization of decision-making and litigation routes can improve environmental law in a variety of ways. First, most environmental issues are regional in nature, with the exception of overarching patterns, such as climate change.[43] Regional issues often call for location-specific solutions. In many ways, federal environmental law and policy epitomizes the notion that "[o]ne-size-fits-all policy approaches too easily become one-size-fits nobody."[44] Second, decentralization of law and policy can lead to unique and innovative solutions; states and localities are often referred to as laboratories for experimentation.[45]

Moreover, states have a better sense of best approaches because they are familiar with each branch of their state government. For example, in a state like New Mexico, a judicial route may be preferable to a legislative route because the legislature has short sessions, is not paid, and is slow in passing

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[40] Daniel A. Farber, *Environmental Protection as a Learning Experience*, 27 LOY. L.A. L. REV. 791, 798 (1994).

[41] Federalism is defined as "the legal relationship and distribution of power between the national and regional governments within a federal system of government." *Black's Law Dictionary* 284 (3rd ed. 1996). Those supporting federalism often argue that states should have the lead role in regional enforcement and regulation.

[42] Mary Ellen Cusack, *Comment: Judicial Interpretation of State Constitutional Rights to a Healthful Environment*, 20 B.C. ENV'T AFF. L. REV. 173, 196 (1993).

[43] Paul S. Weiland, *Federal and State Preemption of Environmental Law: A Critical Analysis*, 24 HARV. ENV'T L. REV. 237, 244-45 (2000).

[44] Jonathan H. Adler, *Conservative Principles for Environmental Reform*, 23 DUKE ENV'T L. & POL'Y F. 253, 279 (2013).

[45] Weiland, *supra* note 43, at 245.

comprehensive legislation. Conversely, a judicial approach may allow for more creative ideas and faster moving initiatives, especially if there is vast public interest. States also know the unique needs of individual communities, unlike federal governmental agencies like the EPA, so they are more likely to address needs in culturally competent ways and focus on disproportionately affected parts of the population.[46]

D. Decentralization Success in New Mexico

Shifting focus from federal statutes and the U.S. Constitution to state resources has already proven to be impactful in New Mexico. One of the most far-reaching New Mexico cases of the decade, *Yazzie v. State*, succeeded partially because the legal argument used relied on the state constitution, not the U.S. Constitution.[47] State constitutions are growing in popularity because they tend to be more expansive than the U.S. Constitution; there is more room for creativity and the development of new common law, especially in states with limited precedent, like New Mexico. *Yazzie v. State* would not have been nearly as successful if public education claims were brought in federal court because of limits to federal Equal Protection and Due Process claims.

State constitutional provisions guaranteeing a fundamental right to an adequate public education allowed for a suit of this nature to be brought in state district court. New Mexico was not the first state to use this litigation strategy, but the unique provisions in the constitution allowed litigants to tailor the claim to meet plaintiffs' needs. One of the education provisions in the state's constitution reads:

> Children of Spanish descent in the state of New Mexico shall never be denied the right and privilege of admission and attendance in the public schools or other public education institutions of the state . . . but shall forever enjoy perfect

[46] For example, the EPA is engaging in culturally insensitive practices while attempting to clean up the Red Pond Road contaminated site in western New Mexico on the Navajo Nation. In its rehousing efforts, the EPA has ignored the Native American community's traditional ways of living and need to stay proximally close to each other, and instead is spreading the community out and housing them in low-quality mobile homes and motels. Will Ford, *A Radioactive legacy Haunts this Navajo Village, Which Fears a Fractured Future*, WASH. POST (Jan. 18, 2020, 3:43 PM), https://www.washingtonpost.com/national/a-radioactive-legacy-haunts-this-navajo-village-which-fears-a-fractured-future/2020/01/18/84c6066e-37e0-11ea-9541-9107303481a4_story.html [https://perma.cc/G7R6-976W].

[47] *Yazzie v. State* will be discussed in further detail below.

> equality with other children in all public schools and education institutions of the state.[48]

Without this provision, combined with other education clauses, litigants would have had a far more difficult time arguing that certain populations of students, including English Language Learners, were being deprived of their constitutional rights.

The full impact of *Yazzie* is yet to be seen. However, a judge ruling that New Mexican children are being deprived of a constitutional right alone is powerful because it sparked momentum to improve laws and policies. While the decision is only two years old, changes to funding, standardized testing, teacher training, and student resources have already occurred.[49] This decision demonstrates that innovative litigation at the state level – using tools from the state's legal toolbox – have the potential to create systemic change. *Yazzie* proves state constitution-based litigation should not cease but should be used to address other injustices affecting the state's children as well.

II. PROPOSED SOLUTION

The previous section highlights that environmental strategies at state and federal levels are not protecting our children enough. Therefore, like the litigants in *Yazzie*, attorneys and advocates must create new routes of litigation to help improve New Mexican children's wellbeing. Because state constitutions are a powerful and often under-utilized resource, advocates should focus on them as a key legal tool. In New Mexico, the inherent rights provision of the state constitution states, "[a]ll persons are born equally free, and have certain natural, inherent, and inalienable rights, among which are the rights of enjoying and defending life and liberty, of acquiring, possessing, and protecting property, and of seeking and obtaining safety and happiness." Combining this provision with the constitution's environmental provision may create new state rights through constitutional law arguments. Because many aspects of constitutional law are abstract and constantly evolving, arguments grounded in Equal Protection and Due Process principles can lead to meaningful rulings.

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[48] NM CONST. art. XII, § 10.

[49] *Educational Plan and Budget Submission Process 2020-2021*, N.M. PUB. EDUC. DEP'T (Spring 2020), https://webnew.ped.state.nm.us/wp-content/uploads/2020/04/EDUCATIONAL-PLAN-AND-BUDGET-SUBMISSION-PROCESS.pdf [https://perma.cc/4GLQ-CRD3].

A. An Overview of State Constitutional Law Cases Across the Country

> "Every day I feel more pressure to successfully address this climate crisis. As a young person, that is a tough burden to carry. Sometimes every hour of every day feels like there is more pressure building. I have been waiting for over three years to get the climate science evidence and our stories into court, to have our case heard, and to start the process of healing our climate. All the while the clock has been ticking and the pressure has been building."[50] Aji P., 19-year-old Washington resident and co-plaintiff in *Juliana v. United States* and *Aji P. v. State of Washington*.

State constitutional law claims aiming to develop or strengthen environmental rights are not novel. However, case law demonstrates that there are many common pitfalls, such as standing and proving disparate impact claims. The following cases give insight into various degrees of success and patterns that occur in litigation with the goal of protecting children and families.

Juliana v. United States has received the most press in recent years because the plaintiffs consist of young adults across the country who are fighting against climate change and the federal government's general lack of response. *Juliana* was filed against the federal government, but sister cases have been filed against multiple states.[51] In *Aji P. v. State of Washington*, twelve plaintiffs under the age of twenty alleged deprivations of their constitutional rights to "life, liberty, property, and a healthful and pleasant environment, including a stable climate system . . . ."[52] Plaintiffs argued that state's actions, such as usage of a fossil fuel based energy and transportation, are contributing to climate change, which affects plaintiffs' wellbeing and ". . . ability to grow to adulthood safely and enjoy the rights, benefits, and privileges of past generations of Washingtonians . . . ."[53] At the trial court, the judge granted the State's motion to dismiss based on a

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[50] Decl. of Aji P. in Supp. of Pls.' Urgent Mot. for Prelim. Inj. ¶ 5, Juliana v. United States, 947 F.3d 1159 (2020) (No. 18-36082) https://www.ourchildrenstrust.org/court-orders-and-pleadings ("Declaration of Plaintiff Aji P.") [https://perma.cc/GS6S-J286].

[51] State Legal Actions: Washington, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/washington (last visited Mar. 30, 2020) [https://perma.cc/SV9L-PVUH].

[52] Compl. at 1, Aji P. v. Washington, No. 18-36082 (King Cty. Super. Ct. Aug. 14, 2018), https://www.ourchildrenstrust.org/washington (select "filed" then "complaint") [https://perma.cc/85Y3-SNEY].

[53] *Id.*

lack of standing, and plaintiffs filed a timely appeal.[54] The case is currently pending on appeal, and a multitude of advocates, including Native American tribes, environmental organizations, and faith-based groups have filed amici briefs in support of the plaintiffs.[55]

In a 2001 Michigan case, community members filed suit against Detroit Public Schools ("DPS") after discovering that DPS was planning on building a new school building on property contaminated with ". . . volatile organic chemicals (VOCs), semi-volatile organic chemicals, petroleum-related materials, polychlorinated biphenyls (PCBs), chlorinated solvents, various heavy metals and radioactive paints . . . ."[56] Community members were especially concerned because the student body consisted of 61% Hispanic students and 13% African American students.[57]

Legal claims asserted included an Equal Protection disparate impact claim based on race and ethnicity, a violation of Title VI of the Civil Rights Act, and violations of ". . . the Fifth and Fourteenth Amendment rights to be free from unreasonable interference with [a] liberty interest in bodily integrity."[58] The court denied the plaintiffs' request for a preliminary injunction because the allegations were speculative since the school was not yet built.[59] However, plaintiffs were successful because the court reasoned that DPS receives federal funding, so the district is subject to Title VI of the Civil Rights Act. For this reason, the court mandated that DPS stay in compliance with a "Due Care Plan."[60] The court also reasoned that an Equal Protection argument is likely not meritorious because the disparate impact was a result of factors outside the state's control, such as "residential housing patterns."[61] Finally, the court reasoned that the plaintiffs' substantive Due Process right to bodily integrity failed because plaintiffs failed to show the "outrageous and shocking character that is required."[62] Although this case was unsuccessful for plaintiffs in many ways, it demonstrated that if plaintiffs were suffering irreparable harm, or if DPS' actions shocked the court, their claim may have been more meritorious.

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[54] Decl. of Aji P., *supra* note 50.

[55] *Id.*

[56] Lucero v. Detroit Pub. Sch., 160 F. Supp. 2d 767, 772 (E.D. Mich. 2001).

[57] *Id.* at 771.

[58] *Id. See also* Planned Parenthood of Se. Pa. v. Casey, 505 U.S. 833 (1992).

[59] *Id.* at 805.

[60] *Id.*

[61] *Id.* at 789. In doing so, the Michigan court failed to recognize that residential housing patterns today directly reflect decades of deliberate race discrimination by federal and state actors. For a thorough examination of this racist history, see RICHARD ROTHSTEIN, THE COLOR OF LAW (2017).

[62] *Id.* at 799.

Multiple other states have been successful in developing environmental health as a fundamental right through litigation as well. In *Montana Environmental Information Center v. Department of Environmental Quality*, the Supreme Court of Montana held that a clean and healthful environment is fundamental under the state's constitution.[63] The court interpreted provisions under the constitution's Declaration of Rights, such as "[a]ll persons are born free and have certain inalienable rights. They include the right to a clean and healthful environment."[64] The court reasoned that " . . . in order to be fundamental, a right must be found within Montana's Declaration of Rights or be a right 'without which other constitutionally guaranteed rights would have little meaning.'"[65] Furthermore, the court explained that because the state's constitution guarantees the right to a clean and healthful environment, when the right is violated, the court must use a strict scrutiny standard and balance compelling government interests.[66] This case demonstrates that state courts vary in ways of interpreting the state constitution. In this case, the court ruled that rights can only be fundamental if they are included in the constitution's Declaration of Rights. However, other states may be more flexible and expansive in their constitutional interpretation.

In 2017, a Hawaii case determined whether the state's constitution protects procedural Due Process interests to persons asserting the "constitutional right to a clean and healthful environment."[67] The court held, in relevant part, that (1) Plaintiffs Sierra Club asserted a protected property interest in a clean and healthful environment; (2) the property interest necessitated a Due Process hearing; and (3) Sierra Club had

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[63] Mont. Env't Info. Ctr. v. Dep't of Env't Quality, 988 P.2d 1236, 1249 (1999). This case arose after a group of environmental organizations filed an injunction to suspend a mining company's exploratory license approved by the Department of Environmental Quality. The mining company's exploration of a potential mining area resulted in heightened levels of arsenic in discharged water. For more background on this case, see Jack R. Tuholske, *U.S. State Constitutions and Environmental Protections: Diamonds in the Rough*, 21 WIDENER L. REV. 239 (2015).

[64] *Id.* at 1243.

[65] *Id.* at 1245.

[66] *Id.* at 1246.

[67] This case arose out of a dispute between environmental organizations, including a local Sierra Club chapter and the Public Utilities Commission. Residents living nearby a power plant owned by an electric utility company sought representation from the Sierra Club after they began to worry about the health impacts of coal being burned at the plant. The Sierra Club relied on a procedural due process argument and Hawaii's environmental safety constitutional provision to argue that residents were entitled to a hearing about whether the plant could continue burning high amounts of coal. *In re* Maui Elec. Co., 408 P.3d 1, 9 (2017).

standing because they demonstrated threatened injury to their right to a clean and healthful environment.[68] The court reasoned that because Due Process requires an opportunity to be meaningfully heard, the defendant Commission was required to hold a hearing and allow Sierra Club to present evidence that the potential for harmful emissions deprived them of their property rights.[69]

Upon comparison of *Lucero v. Detroit Public Schools* and *In re Application of Maui Electric Company*, the fact that *Lucero* considered environmental health an Equal Protection right while *Maui Electric* considered a healthful environment to be a Due Process property interest is noteworthy. Both cases highlight that individual states situate environmental rights differently in the context of constitutional rights. A comparison of these cases also demonstrates that some states, like Hawaii, are more lenient on the issue of standing. *Montana Environmental Information Center v. Department of Environmental Quality* differs from *Lucero* and *Maui Electric* in that it established a fundamental right, instead of arguing that a right was being violated. However, based on the analysis in *Montana Environmental Information Center*, if an individual or group in Montana thought they were being deprived of the fundamental right to a healthful environment, they could likely bring an adequacy claim, simply arguing that the Montana constitution was being violated, instead of a Due Process or Equal Protection claim.

B. New Mexico Constitutional Claim – Unpacking Yazzie v. State

As illustrated above, three commonly used constitutional routes in environmental rights litigation are adequacy claims, Due Process claims, and Equal Protection claims. In New Mexico, the landmark public education rights case of *Yazzie v. State* relied on a mixture of all three claims; however, in the aftermath of the decision, advocates and lawmakers most frequently refer to adequacy clause arguments. Adequacy claims have been brought "in more than twenty states," and "plaintiffs have enjoyed success in increasing numbers of states, including most notably New Jersey, Ohio, Kentucky, and Wyoming.[70]

In *Yazzie*, plaintiffs, consisting of parents and school districts, alleged inadequate school funding formulas and inadequate implementation of

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[68] *Id.* at 22.

[69] *Id.* at 21.

[70] *Constitutional Requirements Governing American Education*, STATEUNIVERSITY.COM, https://education.stateuniversity.com/pages/1882/Constitutional-Requirements-Governing-American-Education.html [https://perma.cc/G7C5-CEG2].

programming "designed to meet statutory mandates."[71] In Judge Singleton's decision, she noted that this litigation route is known as the "third wave" of school finance litigation, which bolsters adequacy claims and devotes less time on federal and state Equal Protection claims, unlike the first wave of school finance litigation.[72] Judge Singleton also clarified that while many states have chosen to defer to legislatures when defining "adequacy," the duty of New Mexico courts is to "interpret and enforce the State Constitution."[73] The standard of review in an adequacy claim is a preponderance of evidence; there is no need for plaintiffs to prove that the government acted unconstitutionally beyond a reasonable doubt, or that "the state must meet a strict scrutiny test in justifying its actions."[74] This lowered burden for plaintiffs highlights why adequacy claims are increasing in popularity across the country.

Plaintiffs also brought a state Equal Protection claim and "compare[d] education given to economically disadvantaged students and ELL students to that given to non-ED and [n]on-ELL students" to frame the issue.[75] The District Court used the New Mexico Supreme Court's own standard for the state constitution's Equal Protection clause:

> We have previously recognized that the Equal Protection Clause of the New Mexico Constitution affords 'rights and protections' independent of the United States Constitution . . . While we take guidance from the Equal Protection Clause of the United States Constitution and the federal courts'

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[71] *Yazzie*, slip op. at 5. Standing was not an issue in this case because the districts "demonstrated they have been injured by the inadequacy of funding." Moreover, "even if the Districts do not have standing, the school boards and parents do have standing." *Yazzie*, slip op. at 5 n.8. For more background on *Yazzie*, see Preston Sanchez & Rebecca Blum Martinez, *A Watershed Moment in the Education of American Indians: A Judicial Strategy to Mandate the State Of New Mexico to Meet the Unique Cultural and Linguistic Needs of American Indians in New Mexico Public Schools*, 27 AM. U. J. GENDER SOC. POL'Y & L. 183 (2019).

[72] *Yazzie*, slip op. at 7. *San Antonio Independent School District v. Rodriguez*, 411 U.S. 1 (1973), ended federal Equal Protection education claims, holding there is no fundamental right to education under the U.S. Constitution and socioeconomic status is not a suspect class.

[73] *Yazzie*, slip op. at 8. Judge Singleton reasons that "'[w]hen a citizen sues the state on the theory that the state has failed to fulfill its constitutional obligation to provide for adequate education, the judiciary has the institutional duty to interpret the education clause to determine whether the state has complied with its constitutional obligation.'" *Id*. at 9 (quoting William F. Dietz, *Manageable Adequacy Standards in Education Reform Litigation*, 74 WASH. U. L.Q. 1193, 1194 (1996)).

[74] *Yazzie*, slip op. at 17.

[75] *Id*. at 60.

> interpretation of it, we will nonetheless interpret the New Mexico Constitution's Equal Protection Clause independently when appropriate . . . Federal case law is certainly informative, but only to the extent it is persuasive . . . In analyzing Equal Protection guarantees, we have looked to federal case law for the basic definitions for the three-tiered approach, but we have applied those definitions to different groups and rights than the federal courts.[76]

The New Mexico Supreme Court's standard clarifies that even though education is not a fundamental right under the U.S. Constitution, it is under the state's constitution.[77] Therefore, the court engaged in an Equal Protection test. The first prong of the Equal Protection test asks "whether the legislation creates a class of similarly situated individuals who are treated dissimilarly."[78] Judge Singleton determined that economically disadvantaged and English language learning students are treated dissimilarly based on performance and graduation rates.[79] Next, the court must determine "what level of scrutiny should be applied."[80] The court used an intermediate scrutiny basis for review, because it does not use rational basis for "fundamental or important constitutional right[s]."[81] The court held that the current funding system fails an intermediate scrutiny test; "[s]ingling out for adverse treatment a class of children who are economically disadvantaged or English language learners does not bear a substantial relationship to any legitimate purpose to be achieved by the various education statutes."[82] Finally, while the state argued that Plaintiffs must show animus for their Equal Protection claim to prevail, Judge Singleton held that "no New Mexico authority has been cited for the proposition that under the state constitution equal protection clause animus must be shown to prove a violation, it is presumed that no New Mexico authority exists."[83] Therefore, Plaintiffs met their burden of proving a state Equal Protection violation in this case.[84] Because the state Due Process

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[76] Breen v. Carlsbad Mun. Schools, 2005-NMSC-028, ¶ 14, 138 N.M. 331, 120 P.3d 413.

[77] *Yazzie*, slip op, at 61.

[78] *Breen*, 2005-NMSC-028, ¶ 10, 138 N.M. at 335.

[79] *Yazzie*, slip op. at 62.

[80] *Id*.

[81] *Id.*

[82] *Id*.

[83] *Id.* at 63. The requirement of animus, or intent, creates an additional barrier for plaintiffs in Equal Protection cases because plaintiffs must show that the defendant acted intentionally in treating similar classes dissimilarly. When animus is not required, plaintiffs' burden of proof is lowered.

[84] *Id.* at 66.

analysis is the same as the state Equal Protection analysis, Plaintiff's Due Process claim was sustained as well.[85]

C. *Creating Environmental Claims Paralleling* Yazzie

Yazzie demonstrates that many state decision makers currently in office are validating community interest in children's wellbeing, so the time is ripe for more creative state constitution-based litigation. Groups representing children suffering irreparable harm to their ability to grow, learn, or engage in activities make ideal plaintiffs to fulfill preliminary requirements like standing.[86] For example, a Southern New Mexico family of dairy farmers who lost their sole income due to PFAS contamination could bring suit against the United States Air Force, among other agencies, if they had evidence that this loss of income affected their children's development or that consumption of the chemicals affected their health. Similarly, Albuquerque students or teachers could bring suit against the State and file an injunction to better resolve issues with water in school buildings. Plaintiffs in a case of this nature could demonstrate that students are losing class time because of a lack of water fountains, are suffering from dehydration, or were exposed to unsafe amounts of lead before recent data showed heightened levels of lead in school buildings. Finally, Native Americans, such as members of the Navajo Nation, could achieve standing by identifying data on birth effects of uranium exposure.[87]

Leaders and decision-makers must be reminded that environmental health is a key pillar in child development for litigation of this nature to be successful. To make this clear, litigation should parallel the constitutional routes taken in *Yazzie* to establish that, if public education is recognized as a fundamental right, environmental wellness as a fundamental or important right should be protected by the state constitution as well. In the remainder

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[85] *Id.*

[86] *Lujan v. Defenders of Wildlife* enumerates the three elements required to prove standing. First, a plaintiff must have suffered an actual injury. An injury in fact is "an invasion of a legally protected interest which is (a) concrete and particularized . . . and (b) actual or imminent . . . Second, the plaintiff must show a causal link between the harm and the conduct complained of – the injury has to be 'fairly traceable to the challenged action of the defendant . . . and not the result of the independent action of some third party . . .' Third, it must be 'likely,' as opposed to merely 'speculative,' that the injury will be 'redressed by a favorable decision.'" 504 U.S. 555, 560-561 (1992).

[87] It is worth noting that even fear of adverse effects is enough to show injury-in-fact. Therefore, a member of the Navajo Nation who would like to have a child in the future could establish injury-in-fact. *See* Friends of the Earth, Inc v. Laidlaw Env't Serv. (TOC), Inc., 528 U.S. 167, 181 (2000) ("The relevant showing for purposes of Article III standing, however, is not injury to the environment but injury to the plaintiff.")

of this section, the three legal routes taken in *Yazzie* will be envisioned in an environmental context, followed by recommendations to practitioners regarding the routes most likely leading to development of a new fundamental right.

First, an adequacy clause argument is unlikely to succeed in New Mexico courts. While the first education provision in the state constitution says "[a] uniform system of free public schools *sufficient* for the education of, and open to, all children of school age in the state must be established and maintained," there is no comparable language about sufficiency or adequacy in the state's environmental provision.[88] Moreover, adequacy clause arguments are only effective when the provision in question is self-executing.[89] To be self-executing, the judiciary alone must be able to enforce a provision.[90] The environmental provision in New Mexico's constitution is unlikely to be self-executing because it gives the legislature, not judiciary, responsibility to protect environmental wellness, so it takes the form of a public policy statement.[91] For these reasons, Equal Protection and Due Process claims are likely to be far more successful than an adequacy clause argument.

The second route worth consideration is an Equal Protection claim against state agencies including New Mexico Environment Department, alleging children are being disproportionately impacted by environmental harms. In *Yazzie*, Judge Singleton held that according to case law, there is no animus requirement for a state Equal Protection claim, which significantly lowers the burden for plaintiffs.[92] Theoretically, higher courts could reverse this ruling, but with support from the governor, a decision could be reached to not appeal a decision, as the parties did in *Yazzie*.[93]

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[88] N.M. CONST. art. XII, § 1 (emphasis added). The general understanding of "adequate," or "sufficient" must shift if a state recognizes that schools without money for textbooks are insufficient and that schools with low graduation rates are insufficient but does not recognize that unclean water in schools is insufficient.

[89] Klee, *supra* note 10, at 162.

[90] *Id.* at 175.

[91] In relevant part, the provision states, "[t]he legislature shall provide for control of pollution and control of despoilment of the air, water, and other natural resources of this state, consistent with the use and development of these resources for the maximum benefit of the people." N.M. Const. art. XX, § 21.

[92] *Yazzie*, slip op. at 63.

[93] Governor Lujan Grisham's promise not to appeal *Yazzie* further justifies that the political time is right to bring more impact litigation to the state's courts. *Martinez and Yazzie Consolidated Lawsuit Updates*, N. M. PUB. EDUC. DEP'T, https://webnew.ped.state.nm.us/bureaus/yazzie-martinez-updates/ (Jul. 14, 2020) [https://perma.cc/V7FG-7W4S].

Under a state Equal Protection analysis, plaintiffs would first have to prove that they were being treated dissimilarly to similarly situated individuals. Plaintiffs could argue that children are being treated dissimilarly to similarly situated New Mexicans in different age categories because environmental issues often have more devastating and long-term effects on children. However, children and adults may not be considered similarly situated classes by a court. Therefore, plaintiffs comparing different groups of children should closely follow *Yazzie*. Plaintiffs in the Navajo Nation could argue that they are treated dissimilarly to non-native children, or they could argue that rural children are treated differently from urban children. In Albuquerque, plaintiffs experiencing effects of lead in their school's water could argue that their school is being treated dissimilarly to schools in more affluent parts of town. Because each of these scenarios closely follows the reasoning of *Yazzie*, plaintiffs would likely meet their burden on the initial part of the Equal Protection analysis, depending on the judge's jurisprudential understanding of the state's Equal Protection analysis.[94]

The next prong of an Equal Protection claim considers what level of scrutiny the court should use if it finds that similar groups are being treated dissimilarly. Rational basis is not an appropriate level of scrutiny here because harmed children do not fall within the "economic or social" category.[95] Furthermore, because there is currently no fundamental right to environmental health, strict scrutiny is not fitting either. Therefore, the court is likely to use an intermediate scrutiny standard and follow *Yazzie*. If the court followed *Yazzie* closely in this part of the analysis, the court would find that no legitimate state interest is furthered by exposing children to life-altering toxic substances. Thus, an Equal Protection argument could prevail, especially if it was in front of a judge who interprets state constitutional law similarly to Judge Singleton.

The third route leading to a new environmental right is arguably the most uncharted and creative. A Due Process claim can take various avenues. First, plaintiffs could argue that a Due Process analysis under New Mexico law is the same as an Equal Protection analysis, so if plaintiffs' Equal Protection rights are violated, Due Process would be violated as well.[96] Second, plaintiffs could use existing state and federal Due Process

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[94] Because *Yazzie* is a District Court decision, other judges are under no obligation to follow Judge Singleton's holdings. The plaintiffs would therefore have to use a fair deal of strategy in selecting venues.

[95] *Yazzie*, slip op. at 63.

[96] *See* Bolling v. Sharpe, 347 U.S. 497 (1954).

theories, in conjunction with New Mexico's Inherent Rights Provision, to argue that environmental health is an unenumerated right created by penumbras. The Supreme Court case *Griswold v. Connecticut*, 381 U.S. 479 (1965) introduced the idea of penumbras. *Griswold* defines penumbras as a group of rights derived by implication from other explicitly protected rights.[97] According to Justice Harlan, there are basic values "implicit in the concept of ordered liberty."[98]

Here, plaintiffs should argue that the umbrella of rights derived from other explicitly protected rights under the state constitution is even greater than those under the federal constitution for two reasons. First, the state constitution is more expansive than the federal constitution, and includes rights not federally guaranteed, such as the right to public education. Second, the Inherent Rights Provision includes the rights of life, liberty, happiness, property, and safety, which cultivates an expanded umbrella of rights as well.[99] Environmental health and wellbeing falls under each right included in the Inherent Rights Provision. If New Mexicans have a right to life, they should have a right to clean air and safe drinking water that will support life. Similarly, New Mexicans' liberty and happiness interests should allow children to go outside whenever and wherever they want and drink clean water from any school fountain. The air that New Mexican children breathe, the water they drink, the food they consume, and the community they live in should all be protected by their property rights. Finally, and most significantly, New Mexicans' safety rights are being

[97] Griswold v. Connecticut, 381 U.S. 479, 484 (1965).

[98] *Id.* at 500. "In a long line of cases, we have held that, in addition to the specific freedoms protected by the Bill of Rights, the 'liberty' specially protected by the Due Process Clause includes the rights to marry, *Loving v. Virginia*, 388 U.S. 1, 87 S.Ct. 1817, 18 L.Ed.2d 1010 (1967); to have children, *Skinner v. Oklahoma ex rel. Williamson*, 316 U.S. 535, 62 S.Ct. 1110, 86 L.Ed. 1655 (1942); to direct the education and upbringing of one's children, *Meyer v. Nebraska*, 262 U.S. 390, 43 S.Ct. 625, 67 L.Ed. 1042 (1923); *Pierce v. Society of Sisters*, 268 U.S. 510, 45 S.Ct. 571, 69 L.Ed. 1070 (1925); to marital privacy, *Griswold v. Connecticut*, 381 U.S. 479, 85 S.Ct. 1678, 14 L.Ed.2d 510 (1965); to use contraception, *ibid.*; *Eisenstadt v. Baird*, 405 U.S. 438, 92 S.Ct. 1029, 31 L.Ed.2d 349 (1972); to bodily integrity, *Rochin v. California*, 342 U.S. 165, 72 S.Ct. 205, 96 L.Ed. 183 (1952), and to abortion, [*Planned Parenthood of Se. Pa. v. Casey*, 505 U.S. 833, 112 S.Ct. 2791, 120 L.Ed.2d 674 (1992)]. We have also assumed, and strongly suggested, that the Due Process Clause protects the traditional right to refuse unwanted lifesaving medical treatment. *Cruzan ex rel. Cruzan v. Dir., Mo. Dep't of Health*, 497 U.S. 261, 278–79, 110 S.Ct. 2841, 111 L.Ed.2d 224 (1990)]." Washington v. Glucksberg, 521 U.S. 702, 720 (1997).

[99] "All persons are born equally free, and have certain natural, inherent, and inalienable rights, among which are the rights of enjoying and defending life and liberty, of acquiring, possessing, and protecting property, and of seeking and obtaining safety and happiness." N.M. CONST. Art II § 4.

violated if children's development and health are suffering as a result of environmental injustices.

The Inherent Rights Provision has only been interpreted by New Mexico courts a handful of times.[100] However, it is far less of a stretch to argue that a right to safety is being infringed upon if the air, ground, and water around us is unsafe. If an inherent rights argument fails, there is still a constitutional basis for an argument that the rights to public education and liberty found elsewhere in the state constitution give rise to a right to environmental health on their own. The right to public education itself should ignite the recognition of other rights necessary to achieve an adequate public education. Ultimately, students struggling with developmental issues and lack of access to clean water are never going to receive an adequate education if the world they live in is hurting them every day. Therefore, litigants should rely upon the interconnected relationships between existing state constitutional rights to advocate for a new right to a healthful environment. In creating litigation, litigants must propose a series of constitutional arguments to increase the chances that at least one argument will resonate with state judges.

III. LOOKING FORWARD: DISTINGUISHING *MORRIS V. BRANDENBURG*

Courts do not freely develop new constitutional rights; arguments must be compelling and have constitutional support. The most recent litigation strategy aiming to create a new constitutional right was ultimately unsuccessful, not because the state's Supreme Court Justices did not find the argument compelling or have a desire to find a new right, but because they could not legally justify the proposed right.[101] It is therefore important that litigants advocating for an environmental right bolster their claims by distinguishing a right to a healthful environment from a right to physician aid in dying.

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[100] *See* Cal. First Bank v. State, 1990-NMSC-106 ¶¶ 42-44, 11 N.M. 64, 801 P.2d 646 (dismissing appellant's argument that Inherent Rights Provision protects persons from violence by a private party). *But see* Reed v. State *ex rel.* Ortiz*,* 1997–NMSC–055, ¶ 105, 124 N.M. 129, 947 P.2d 86 (recognizing that "[o]ur courts have not fully defined the scope of this constitutional provision"), *rev'd sub nom. on other grounds by* New Mexico *ex rel.* Ortiz v. Reed*,* 524 U.S. 151 (1998)."

[101] Reflecting upon this decision four years later, retired New Mexico Supreme Court Justice Edward Chávez indicated that the court wanted to hold that a right to physician assisted suicide existed but felt as though it could not constitutionally justify the decision. Comments of New Mexico Supreme Court Justice (ret.) Edward Chávez at Medical Legal Day, University of New Mexico School of Law (Mar. 6, 2020).

In *Morris v. Brandenburg*, 2016-NMSC-027, ¶ 58, the New Mexico Supreme Court held that there is no fundamental or important right to physician aid in dying under the Inherent Rights Clause or Due Process clause of the state constitution. The court reiterated liberty rights defined by U.S. Supreme Court precedent and relied upon three key factors that could give support to creating a new right. The factors were (1) the state's history of supporting the proposed right; (2) case law supporting the proposed right; and (3) whether the state has a rational basis for not creating the proposed right.[102]

First, appellants argued that the state's history of valuing patient autonomy and dignity illustrated support for physician aid in dying, but the court was unpersuaded and reasoned that respect for patient autonomy does not guarantee aid in dying.[103] This line of reasoning is immediately distinguishable from the right to a healthful environment right because the state constitution explicitly values protecting the environment and protecting people from environmental harm. Additionally, New Mexican culture has always respected and relied upon the environment. This is evident from the multitude of state and national parks, agricultural reliance on the land, indigenous connections to land, and scholars' commitment to environmental science and law.[104] Finally, the recent momentum to improve children's futures should also support reasoning that the state cares about children's wellbeing and health.

Next, the court reasoned that none of the case law in the state supported a right to die or the notion that this right falls under the Inherent Rights Provision.[105] Importantly, the court stated "the Inherent Rights Clause has never been interpreted to be the exclusive source for a fundamental or important constitutional right, and on its own has always been subject to reasonable regulation."[106] Therefore, it is crucial for litigants to argue that a combination of Due Process penumbras and Inherent Rights penumbras

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[102] Morris v. Brandenburg, 2016-NMSC-027, ¶¶ 35, 51-52, 367 P.3d 836, 849, 855.

[103] *Id.* ¶¶ 35-36, 367 P.3d at 849.

[104] White Sands in Southern New Mexico was designated as a national park on December 20, 2019, and the University of New Mexico School of Law's Natural Resources Journal – now at Volume 60 – was one of the first law journals in the field; the journal began publishing before "environmental law" entered the popular lexicon. Allen Kim, *White Sands National Monument designated as the newest US national park*, CNN (Dec. 23, 2019), https://www.cnn.com/travel/article/white-sands-national-park-trnd/index.html [https://perma.cc/4GX5-74PW]; *see generally Natural Resources Journal*, U. N.M. SCH. L., http://lawschool.unm.edu/nrj/ (last visited May 6, 2020).

[105] Morris, 2016-NMSC-027, ¶ 51, 367 P.3d at 855.

[106] *Id.*

yields a right to a healthful environment, instead of arguing two separate routes. Because New Mexico precedent thus far indicates that an Inherent Rights argument alone is insufficient, the Inherent Rights Provision must be used to lend support to larger Due Process arguments. In addition, a case striving for an environmental right could argue that *Yazzie* should be viewed as persuasive, as discussed above.

Third, in *Morris*, the court found that New Mexico has a rational basis for protecting human life. The court reasoned that the state statute preventing physician assisted suicide is constitutional because the "[s]tate does have a legitimate interest in providing positive protections to ensure that a terminally ill patient's end-of-life decision is informed, independent, and procedurally safe," even though it does not "have an interest in preserving a painful and debilitating life that will end imminently."[107] However, there is no legitimate interest in the state preventing a healthful environment from existing.[108] Conversely, the environmental provision suggests otherwise; it suggests the state has a duty to protect the environment, so people living in the environment are protected. In the case of an environmental right, no statute needs to be stricken, the state only needs to recognize that it is not doing enough to ensure a safe and clean environment.

Finally, in addition to using Judge Chávez's reasoning in *Morris* to distinguish the right to a healthful environment from the right to aid in dying, litigants should look to the appellate court's dissent, penned by Judge Vanzi.[109] In her dissent, Judge Vanzi highlights multiple compelling constitutional arguments in support of expanded liberty interest. First, the dissent discusses that in a companion case to *Roe v. Wade*, Justice Douglas' concurrence included "a freedom to care for one's own health and person" in his definition of liberty.[110] This case could be used to support the argument that children do not have the autonomy or knowledge to protect themselves, so states must take extra measures in order to protect them from environmental harms. Importantly, Judge Vanzi also recognized the

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[107] *Id.* ¶ 52, 367 P.3d at 855.

[108] Saving money by failing to provide safe drinking water is not a rational state action, as indicated by the criminal indictments, including involuntary manslaughter, which arose from the Flint, Michigan water crisis. *Flint Water Prosecution Team Expands Investigation Based on New Evidence, Dismisses Cases Brought by Former Special Counsel*, MICH. DEP'T ATT'Y GEN. (Jun. 13, 2019), https://www.michigan.gov/ag/0,4534,7-359-92297_92299-499753--,00.html [https://perma.cc/5R49-5L76].

[109] Morris v. Brandenburg, 2015-NMCA-100, ¶71, 356 P.3d 564, 591 (Vanzi, J., dissenting), *overruled by* Morris v. Brandenburg, 2016-NMSC-027, 367 P.3d 836.

[110] Doe v. Bolton, 410 U.S. 179, 213 (1973) (Douglas, J., concurring).

freedom given to courts in interpreting the constitution and continuing to create new rights by relying upon *Obergefell v. Hodges*, which guaranteed a fundamental right to marry for same sex couples. In terms of expanding the meaning of liberty, the *Obergefell* court reasoned:

> The nature of injustice is that we may not always see it in our own times. The generations that wrote and ratified the Bill of Rights and the Fourteenth Amendment did not presume to know the extent of freedom in all of its dimensions, and so they entrusted to future generations a charter protecting the right of all persons to enjoy liberty as we learn its meaning. When new insight reveals discord between the Constitution's central protections and a received legal stricture, a claim to liberty must be addressed.[111]

Through the *Obergefell* reasoning, Judge Vanzi's dissent highlights that expanding constitutional rights is not a formulaic process; it involves the court's "reasoned judgment."[112] In terms of the Inherent Rights Provision, Judge Vanzi reminds the court that even though the provision has never been interpreted to protect a right alone, this "does not mean that its text may simply be read out of the Constitution," nor does it mean that its scope cannot be broadened.[113] This reasoning is crucial because it demonstrates that some judges are of the opinion that the purpose of the Inherent Rights Provision must be to expand New Mexicans' liberties.[114] Judge Vanzi thus concludes her Due Process analysis by explaining that she would hold that the Inherent Rights Provision "affords New Mexico citizens the right and agency to defend their lives and liberty by availing themselves of aid in dying." Each of these compelling constitutional arguments is vital for litigants aiming to create a new right to a healthful environment. Moreover, although *Morris* did not prevail, the dissent gives litigants a glimmer of hope by showing that judges interpret the constitution differently, so creative litigation is worthwhile.

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[111] Obergefell v. Hodges, 576 U.S. 644, 663 (2015). Importantly, in *United States v. Juliana*, 217 F. Supp. 3d 1224 (D. Or. 2016), plaintiffs used a similar line of reasoning by relying on *Obergefell* as well, and this reasoning was *not* reversed by the court.

[112] *Morris*, 2015-NMCA-100, ¶ 89, 356 P.3d at 596.

[113] *Id.* ¶¶ 110-111, 356 P.3d at 603.

[114] *Id.* ¶ 112, 356 P.3d at 603.

CONCLUSION

> "For the last two summers, the city where I live, Seattle, was shrouded in smoke from . . . wildfires . . . I have spent most of my life in Seattle and the summers are usually the best time to be here, with the fresh breezes coming in off the Puget Sound. But the last two years have brought something much darker. The smoke was so bad in 2017 and 2018 that we were advised not to go outside because the bad air quality could make you sick. The people who did venture outside were usually wearing gas masks or other kinds of protective breathing equipment. I was told that the air quality in Seattle during these times was even worse than it was in Beijing. Not only was it upsetting to have to stay inside during the time when I prefer to be outside and enjoying the Seattle summer, it was terrifying because I know that this is going to become the new normal. I always used to look forward to summers in Seattle but now, I am afraid because I don't want to be kept hostage in my house trying not to breathe the polluted air." Aji P., 19-year-old Washington resident and co-plaintiff in *Juliana v. United States* and *Aji P. v. State of Washington* [115]

Advocates and community members should never be satisfied with settling for the "new normal" that Aji described, where children cannot spend their free time playing and exploring the outdoors like past generations have. The new normal is a false compromise, and advocates should resist that temptation because it prevents the realization of attainable judicial and legislative progress. Whether it is through declarations sent to courts or data ranking child wellbeing, our children are telling us that we are dooming future generations. As attorneys, advocates, and community members, we have a duty to use our privilege, knowledge, and skills to protect vulnerable populations by giving them a voice. Impact litigation is never straightforward or easy, but it is essential in advocating for systemic change of this nature. Moreover, the goal of impact litigation is never to win, it is to spur change. Regardless of the outcome of the environmental litigation proposed, a domino effect could ensue; publicity and support may push the legislature to focus more on environmental wellness and execute its duty to protect New Mexicans from environmental harms. Cities may enact ordinances resulting in an option to pursue administrative claims at the municipal level as well.

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[115] Decl. of Aji P., *supra* note 50.

In order to thrive, children's basic needs, including food, shelter, and a healthy place to grow, are vital. Therefore, New Mexicans must focus on environmental health to the same extent as they focus on improving public education. For this reason, New Mexico's courts should recognize that under Due Process, Equal Protection, and the Inherent Rights provision, children have a right to a healthful environment. Without this recognition, the state will continue to rank among the worst for child wellbeing. The time to expand state constitutional rights to include the fundamental right to a healthful environment is now.

* * *

TAKING BACK THE BEACH

Lora Naismith[*]

The numerous effects of anthropogenic climate change, including sea-level rise, continue to make global changes to our environment. With greenhouse gas emissions come warmer temperatures, melting glaciers, and a higher sea-level. In an attempt to address the rising sea, communities have the option to protect the shoreline, alter structures to be able to remain in the area, or abandon the area as the sea rises. The Texas coast alone is home to roughly 6.5 million people and provides jobs to nearly 2.5 million of those people. As the sea continues to rise, the Texas coast is subject to more severe storms, flooding, and coastline loss. The coastal economy includes various industries that generate billions of dollars in revenue and has ports that are essential for national exporting. As the sea begins to encroach on coastal properties, these industries, as well as the interests of both private property owners and the general public with access to the waterfront, are at risk. However, protecting the coast and balancing the interests of these parties leads to numerous lawsuits and litigation. The Texas Open Beaches Act was an attempt to codify traditional common law doctrines of public trust and rolling easements, which were generally interpreted in favor of the public. However, the 2012 Texas Supreme Court decision in Severance v. Patterson *favored the rights of the private property owner over the public's access to beaches. Because alternative measures to mitigate sea-level rise from impacting waterfront properties can have detrimental ecological effects on the coastal environment, Texas should implement a regulatory scheme that addresses these potential issues. The Texas Coastal Resiliency Plan discusses numerous coastal concerns and outlines several projects to restore Texas coastlines. While this plan aims to protect the coast and its numerous industries, it does not consider how the projects affect property rights. To remedy this, Texas communities should establish regulations that protect public access easements, develop more stringent construction setbacks or permitting procedures, and require more risk disclosure for potential property owners buying coastal properties.*

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INTRODUCTION

On August 25, 2017, Hurricane Harvey hit Rockport, Texas.[1] The hurricane initially destroyed thousands of homes, blocked the water supply to the area for nearly a week, and created a storm surge that destroyed numerous piers, boats, and marinas.[2] The hurricane then moved north and rained on Harris County causing catastrophic flooding.[3] Hurricane Harvey is estimated to have caused around $125 billion in damage, making it the second most costly hurricane[4] to hit the United States since 1900. Within a month, Hurricanes Irma and Maria hit Florida, Puerto Rico, and the Caribbean, causing $50 billion and $90 billion in damage, respectively.[5] Climate scientists have described the 2017 hurricane season as unprecedented, yet consistent with the expectations of a warming climate.[6] The increased rainfall and rapid intensification of these storms is due in part to human-caused climate change.[7] Climatologists expect that storms will continue to become more intense and frequent and will bring higher levels of rainfall.[8]

In addition to more severe storms, human activities such as greenhouse gas emission will continue to increase global temperatures, which will cause the sea-level to rise. Currently, increasing global temperatures are causing ice caps to melt and the ocean to warm.[9] This, combined with sinking land, has caused the sea-level to rise at a much faster rate than before the industrial revolution.[10] An increased sea-level has the potential to erode beaches, increase flooding, and destroy homes and infrastructure along the coastline.

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[1] Eric S. Blake & David A. Zelinsky, *Hurricane Harvey*, NAT'L HURRICANE CTR. TROPICAL CYCLONE REP. (May 9, 2018), https://www.nhc.noaa.gov/data/tcr/AL092017_Harvey.pdf [https://perma.cc/SY66-TB7U].

[2] *Id.*

[3] *Id.*

[4] Blake, *supra* note 1. Hurricane Katrina was the costliest hurricane, at $160 billion in damages.

[5] John P. Cangialosi et al., *Hurricane Irma*, NAT'L HURRICANE CTR. TROPICAL CYCLONE REP. (Jun. 30, 2018), https://www.nhc.noaa.gov/data/tcr/AL112017_Irma.pdf [https://perma.cc/CC8B-A2E8]; Richard J. Pasch et al., *Hurricane Maria*, NAT'L HURRICANE CTR. TROPICAL CYCLONE REP. (Feb. 14, 2019), https://www.nhc.noaa.gov/data/tcr/AL152017_Maria.pdf [https://perma.cc/B2MA-CKHZ].

[6] Katharine Hayhoe et al., *Our Changing Climate*, *in* IMPACTS, RISKS, AND ADAPTATION IN THE U.S.: FOURTH NAT'L CLIMATE ASSESSMENT 73, 95 (2018).

[7] *What Climate Change Means for Texas*, ENV'T PROT. AGENCY, https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-tx.pdf [https://perma.cc/82HF-H4LB] (last visited Aug. 14, 2020).

[8] *Id.*

[9] *Causes*, SEALEVELRISE.ORG, https://sealevelrise.org/causes/ [https://perma.cc/JN79-HGQZ] (last visited Aug. 13, 2020).

[10] *Id.*

As of 2016, 29% of the U.S. population lived in coastline counties.[11] These coastal communities are not just home to millions of houses for residents, but are also home to billions of dollars in infrastructure like government projects and private-sector businesses.[12] These communities are continuing to grow despite the potential effects of sea-level rise.[13] While not everyone who lives on a coast will experience sea-level rise directly, most, if not all, will experience indirect effects in their communities.[14] In an attempt to shield their property, coastal property owners are armoring the shoreline by building barriers such as bulkheads and seawalls.[15] While these barriers may protect private property, they also lead to the destruction of coastal wetlands and beaches.[16] This leads to a tension between the private property owners who want to develop and protect their property, and the right of the public to access, use, and conserve the natural resources of the coast.[17]

Currently, there is no comprehensive federal statute that addresses sea-level rise,[18] but there are federal statutes that give agencies authority to take action to mitigate climate change. For example, the Clean Air Act gives the Environmental Protection Agency ("EPA") the authority to regulate certain gas emissions.[19] However, not all agency actions adequately balance the interests of private property owners and the public. This has led to numerous court cases wherein the court becomes responsible for balancing these interests.[20] In an attempt to better balance these competing interests and fill the gaps left by federal statutes and common law, many states and cities have adopted laws and programs that directly or indirectly address the causes and

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[11] Darryl T. Cohen, *Coastline County Population Continues to Grow*, U.S. CENSUS BUREAU (Aug. 6, 2018), https://www.census.gov/library/stories/2018/08/coastal-county-population-rises.html [https://perma.cc/VZ83-HX7M].

[12] Richard O. Jacobs & Steven M. Hogan, *Will Our Future Drown? Paying for the Costs of Sea-level Rise*, 91 FL. BAR J. 52, 52 (2017); Peter Folger & Nicole T. Carter, SEA-LEVEL RISE AND U.S. COASTS: SCIENCE AND POLICY CONSIDERATIONS 2 (Congressional Research Service ed., 2016).

[13] Serena L. Liss, *Shoreline Armoring and the Public Trust Doctrine: Balancing Public and Private Interests as Seas Rise*, 46 ENV'T L. REP. NEWS & ANALYSIS 10033, 10034 (2016).

[14] Folger, *supra* note 12, at 2.

[15] Liss, *supra* note 13, at 10034.

[16] *Id.* at 10034.

[17] *Id.* at 10034.

[18] MICHAEL B. GERRARD, GLOBAL CLIMATE CHANGE AND U.S. LAW 3 (Michael B. Gerrard & Jody Freeman eds., 2nd ed. 2014).

[19] *See generally*, Clean Air Act, 42 U.S.C. § 7401.

[20] *See* Severance v. Patterson, 370 S.W.3d 705 (Tex. 2012); Stop the Beach Nourishment v. Florida Dep't of Env't Prot., 560 U.S. 702 (2010); Borough of Harvey Cedars v. Karan, 214 N.J. 384 (2013).

effects of climate change and sea-level rise.[21] One such statute is the Texas Open Beaches Act ("TOBA"). This act was originally passed to ensure the public will have access to beaches even as the tidal line changes.[22] However, the Texas Supreme Court decision in *Severance v. Patterson* shifted the benefit back to private property owners by interpreting the statute narrowly.[23] This decision is potentially detrimental to Texas's coastal ecosystem and could result in more damage to coastal properties as the sea level continues to rise. Texas has made some strides following *Severance v. Patterson* in supporting the public's right to access beaches. Nevertheless, as the sea-level continues to rise and weather patterns become more extreme, Texas needs to ensure that its coastlines are protected, and the public does not lose access to their beaches.

Part I of this Article looks at the causes of sea-level rise and the effects on Texas coasts. Part II looks at the common law doctrines of public trust, public access easements, rolling easements, and how each relates to sea-level rise. Part III looks at the codification of these doctrines in the Texas Open Beaches Act, and the Texas Supreme Court decision in *Severance v. Patterson*. Part IV provides a discussion on how Texas law can better prepare to handle the effects of sea-level rise.

I. CLIMATE CHANGE AND SEA LEVEL RISE

A. Causes of Sea-Level Rise

There are several causes of sea-level rise, and while some are natural, most are the result of human-caused climate change. Sea-level is generally expressed as either global mean sea-level, the average height of the sea surface around the globe, or as relative sea-level, the height of the sea surface relative to land surface.[24] With current technology, climatologists are able to predict increases in sea-level to 2050 with a high level of certainty.[25] These estimates are directly tied to greenhouse gas concentration in the atmosphere, showing how more greenhouse gas emissions will result in a higher sea-level.[26] Increased greenhouse gas emissions have raised the temperature of both the air and the ocean. These increasing temperatures have led to melting

[21] Gerrard, *supra* note 18, at 3.

[22] Tex. Nat. Res. Code § 61.001(8).

[23] *See* Severance v. Patterson, 370 S.W.3d 705 (Tex. 2012).

[24] Folger, *supra* note 12, at 4, 8.

[25] Michael Oppenheimer et al., *Chapter 4: Sea Level Rise and Implications for Low Lying Islands, Coasts and Communities*, *in* SPECIAL REPORT ON THE OCEAN AND CRYOSPHERE IN A CHANGING CLIMATE 4-1, 4-9 (2019), https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_Chapter4.pdf [https://perma.cc/9TNF-K4LS].

[26] *Id.* at 4-4.

ice caps, ice sheets, and alpine glaciers.[27] Climatologists estimate that melting ice contributes to around two-thirds of global sea-level rise, however, the exact effects are difficult to measure.[28] With current technology, climatologists estimate that the Greenland and the Antarctic ice sheets will cause thirty-six centimeters of sea-level rise by 2100.[29]

Increasing ocean temperatures also result in a phenomenon known as thermal expansion, where the volume of water increases as temperature rises.[30] Because higher temperatures result in a lower density, an increase in temperature will result in a higher sea-level even if no additional water flows into the ocean.[31] As the oceans continue to become warmer, thermal expansion will occur more rapidly and cause an increase in water volume which then causes an increase in sea-level.[32] Melting ice and thermal expansion account for nearly 75% of sea-level rise since the 1970s.[33]

In addition to ice melt and thermal expansion increasing the global sea-level, there is regional variation in sea-level rise due to factors such as changing land elevation. For example, the southern coastline of Alaska is rising, resulting in a lower relative sea-level, while the coastline near New Orleans, Louisiana is sinking, resulting in a higher sea-level rise.[34] This gradual, human-induced sinking known as subsidence is one of the main causes of regional sea-level rise in delta areas such as New Orleans.[35] Texas is particularly susceptible to an increased sea-level from subsidence[36] due to the "natural compaction of sediments and extraction of groundwater, oil and

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[27] *See generally* CORE WRITING TEAM, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: SYNTHESIS REPORT 8 (Rajendra K. Pachauri & Leo Meyer eds. 2014) [hereinafter IPCC].

[28] *Causes*, *supra* note 9.

[29] Oppenheimer, *supra* note 25, at 4-34, 41. Measurements show the Greenland ice sheet is not expected to contribute more than 20 centimeters to sea-level rise by 2100, and the Antarctic ice sheet will most likely only contribute 16 centimeters by 2100.

[30] COMMITTEE ON SEA LEVEL RISE IN CALIFORNIA, OREGON, AND WASHINGTON, SEA-LEVEL RISE FOR THE COASTS OF CALIFORNIA, OREGON, AND WASHINGTON: PAST, PRESENT, AND FUTURE 33 (2012).

[31] Oppenheimer, *supra* note 25, at 4-15.

[32] *Id.*

[33] IPCC, *supra* note 27, at 42.

[34] *Causes*, *supra* note 9.

[35] Oppenheimer, *supra* note 25, at 4-5.

[36] Subsidence can be caused by human activities such as groundwater extraction, oil and gas extraction, and fracking have led to increased regional sea-level rise. As groundwater, oil, or natural gas is pumped out of the ground, the surface of the land sinks to fill the now empty space. *Causes*, *supra* note 9.

gas."[37] From subsidence alone, the sea-level of the Texas coast is estimated to rise two feet by the year 2100.[38]

Climatologists currently estimate that the sea-level will rise between forty-three and eighty-four centimeters by 2100, depending on global greenhouse gas emissions.[39] While this number may seem small and easily manageable, one meter of coastal land is lost for every centimeter of sea-level rise.[40] Limitations in current technology led to high levels of uncertainty when forecasting past the year 2050, which makes addressing potentially mitigating factors in regulations difficult. Regional variation also makes it difficult to pass any comprehensive federal statute, although smaller studies at state or municipal levels give localities better information on the causes and effects of sea-level rise for that area.

B. Effects on Texas Coasts

Roughly 6.5 million people in Texas live on the coast of the Gulf of Mexico.[41] More than 1.5 million acres of land lie less than ten feet above the high tide line, and this land has over $33 billion in property value.[42] The Texas coast employs 3.1 million people and earns almost $200 billion in revenue annually.[43] This area also has the fastest growth of any coastline region in the United States,[44] and continues to grow despite the accelerating rate of sea-level rise.[45]

The potential effects on Texas coasts due to sea-level rise are broadly categorized as increased erosion and shoreline change, increased impacts and damages from storms, increased flooding, and increased saltwater intrusion of estuaries and aquifers. Erosion occurs more rapidly with higher sea-levels. In Texas, the areas that are most at risk from erosion are the barrier islands because they are directly exposed to "wave action," which is the movement

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[37] GEORGE P. BUSH, TEXAS COASTAL RESILIENCY MASTER PLAN 20 (2019) [hereinafter Master Plan 2019].

[38] *Id.*

[39] Oppenheimer, *supra* note 25, at 4-4.

[40] *Sea Level Changes and the Texas Coastal Environment*, BUREAU OF ECONOMIC GEOLOGY, https://www.beg.utexas.edu/coastal/thscmp/support/SeaLevelRiseLesson.pdf [https://perma.cc/WN9N-N998] (last visited May 2, 2020).

[41] *Texas*, OFFICE FOR COASTAL MANAGEMENT, https://coast.noaa.gov/states/texas.html [https://perma.cc/D95L-ACFC] (last visited May 2, 2020).

[42] BEN STRAUSS ET AL., TEXAS AND THE SURGING SEA: A VULNERABILITY ASSESSMENT WITH PROJECTIONS FOR SEA LEVEL RISE AND COASTAL FLOOD RISK 15-16 (2014).

[43] OFFICE FOR COASTAL MANAGEMENT, *supra* note 41.

[44] *Id.*; Cohen, *supra* note 11.

[45] Strauss, *supra* note 42, at 7.

of the waves that causes erosion.[46] Increased erosion will result in the shoreline advancing and can potentially lead to the loss of coastal homes, infrastructure, beaches, and wetlands.[47] Erosion models predict that Texas shorelines "will continue to retreat by 13.12 m (4 ft.) per year," which could result in a loss of "a quarter of homes and other structures within 152.4 m (500 ft.) of the U.S. coastline" over the next sixty years.[48]

Advancing shorelines and increased sea-levels also increase the severity of weather events and the amount of damage storms can inflict on coastal communities. The 2017 hurricane season was one of the worst in terms of damage to coastal communities.[49] This is due to the combined effect of increased air and ocean temperatures, weather patterns, and higher sea-levels.[50] Higher temperatures result in longer lasting and more intense rainfall. This was seen in the highest rainfall in history, recorded during Hurricane Harvey.[51] Higher sea-levels also result in more severe storm surges. That, combined with increased rainfall, make flooding on coastal communities more commonplace.[52] Hurricane Hanna recently made landfall in south Texas, which resulted in record levels of rainfall and "catastrophic flooding."[53]

One of the most direct effects of sea-level rise on coastal communities is the increased risk of flooding. Although storm surges from more powerful storms cause increased flooding, a larger concern is the increased frequency of "coastal nuisance flooding."[54] This occurs when the local sea-level rises above a "threshold height for flooding" and combines with the rising tide to result in high tide floods.[55] These floods usually result in closed roads and other inconveniences and, when they occur infrequently, do not cause

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[46] BUREAU OF ECONOMIC GEOLOGY, *supra* note 40, at 6; Folger, *supra* note 12, at 18.

[47] Folger, *supra* note 12, at 18.

[48] BUREAU OF ECONOMIC GEOLOGY, *supra* note 40, at 6.

[49] Hayhoe, *supra* note 6, at 95.

[50] *Id.*

[51] *Id.*

[52] *Id.*

[53] Matthew Cappucci et al., *Hanna Hammers South Texas, Hit Hard by Coronavirus, with Flooding Rains*, WASH. POST (Jul. 26, 2020) https://www.washingtonpost.com/weather/2020/07/26/hanna-south-texas/ [https://perma.cc/5JT7-YRZ2].

[54] *What is High Tide Flooding?* NAT'L OCEANIC AND ATMOSPHERIC ADMIN., https://oceanservice.noaa.gov/facts/nuisance-flooding.html [https://perma.cc/V7C4-MMLV] (last visited Aug. 13, 2020).

[55] *High-Tide Flooding*, U.S. CLIMATE RESILIENCE TOOLKIT, https://toolkit.climate.gov/topics/coastal-flood-risk/shallow-coastal-flooding-nuisance-flooding [https://perma.cc/H6T7-LA57] (last modified July 1, 2020).

extreme amounts of damage.[56] However, sea-level rise is beginning to flood drainage systems and push seawater into drainage pipes and up onto streets as the tide rises.[57] A failure of drainage systems combined with higher storm surges, more powerful storms, and increased levels of precipitation could be potentially catastrophic for Texas coastal communities.

The last major effect of sea-level rise on Texas coasts is saltwater intrusion of aquifers and estuaries. With an increased sea-level, saltwater from the Gulf of Mexico advances inland into rivers, bays, and aquifers.[58] This causes an increase in salinity which destroys vegetation and makes aquifers unusable for irrigation or fresh drinking water.[59] This is a large problem in Texas because the main cause of sea-level rise in Texas is land subsidence from the extraction of oil, gas, and groundwater.[60] The Houston-Galveston region of Texas has high levels of land subsidence due to groundwater pumping, which increases both the sea-level along the coast as well as the amount of saltwater intrusion of aquifers.[61]

The Texas coast is over 370 miles long, and its shoreline is bordered by tidal flats, salt marshes, and estuaries that are home to numerous species of birds, fish, and other sea life.[62] In addition to providing essential habitats for wildlife, coastal wetlands and beaches act as a buffer for flooding and storms.[63]Wetlands also absorb carbon dioxide and pollutants, purifying the water.[64]As the sea-level rises, the survival of wetlands depends on the wetland's ability to migrate inland.[65] On undeveloped coasts, wetlands can move inland without human structures stopping them.[66] However, depending on the rate at which the sea-level advances, the wetland may go through a

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[56] *Id.*

[57] *Texas' Sea Level Is Rising*, SEALEVELRISE.ORG, https://sealevelrise.org/states/texas/ [https://perma.cc/LHK9-JK3N] (last visited May 2, 2020).

[58] BUREAU OF ECONOMIC GEOLOGY, *supra* note 40, at 7.

[59] *Id.*

[60] Land subsidence is the sinking of land due to decreased pressure in underground oil/gas/water reservoirs. Folger, *supra* note 12, at 15; *Texas' Sea Level is Rising*, *supra* note 57.

[61] Folger, *supra* note 12, at 15.

[62] BUREAU OF ECONOMIC GEOLOGY, *supra* note 40, at 4.

[63]GEORGE P. BUSH, TEXAS COASTAL RESILIENCY MASTER PLAN 80 (2017), https://www.glo.texas.gov/coastal-grants/projects/files/Master-Plan.pdf [https://perma.cc/A8TB-K3ZY] [hereinafter Master Plan 2017].

[64] *Id.*

[65] Folger, *supra* note 12, at 20.

[66] *Id.* at 18. Wetlands on undeveloped coasts with low topography will move inland, if the terrain is mountainous or has hills, then the wetland will not migrate inland past the mountain or hill.

habitat transition. If the sea-level advances slowly, coastal wetlands and beaches have a better chance at adapting and persisting despite sea-level rise. If the sea-level advances more rapidly, wetland habitats like coastal forests and flat lands will likely be lost,[67] but mangroves, saltmarshes, and potentially some estuaries would survive.[68]

Because wetlands buffer coastal communities from flooding and storms, sea-level rise should theoretically increase society's reliance on these coastal habitats. However, because communities tend to prefer to protect their homes instead of retreating from the incoming shoreline, wetlands are being destroyed instead of preserved.[69]

C. Responses to Sea Level Rise

There are three ways that communities commonly respond to advancing shorelines: (1) shoreline protection; (2) accommodation; and (3) retreat.[70] Each of these methods has certain benefits and risks that vary depending on location.

1. Shoreline Protection

Shoreline protection describes the process of protecting the coast through either "hard armoring" or "soft armoring."[71] Hard shoreline armoring is the construction of hard structures such as jetties and bulkheads to protect property.[72] States generally allow private owners to build these structures and exclude the public from the area inland of the structure, effectively privatizing that section of the beach.[73] Shoreline armoring can also change natural sand and sediment migration patterns, which can have detrimental ecological impacts on wetlands and beaches.[74] Additionally, the area between the shoreline and the structure is eliminated through erosion and sea-level rise because the shoreline structure prevents the beach from naturally migrating

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[67] Coastal flatlands and forests will not likely survive a rapid change in salinity (higher salt concentration from advancing sea water). BUREAU OF ECONOMIC GEOLOGY**,** *supra* note 40, at 4.

[68] Folger, *supra* note 12, at 21.

[69] Liss, *supra* note 13, at 10036.

[70] JAMES G. TITUS, ROLLING EASEMENTS 1 (Climate Ready Estuaries Program ed., 2011) [hereinafter Rolling Easements].

[71] *Id.*

[72] Erica Novak, *Resurrecting the Public Trust Doctrine: How Rolling Easements Can Adapt to Sea Level Rise & Preserve the United States Coastline*, 43 B.C. ENV'T. AFF. L. REV. 575, 579 (2016).

[73] Liss, *supra* note 13, at 10041.

[74] Novak, *supra* note 72, at 579.

inland.[75] Shoreline armoring structures are effective at protecting the specific property they were designed to protect, but they tend to exacerbate beach erosion and flooding in neighboring areas.[76] Increased flooding and erosion in neighboring areas presents a potential Fifth Amendment takings issue, if the structure is a government project, or a potential tort liability for private property owners.[77]

Conversely, soft armoring uses natural features and resources to protect the shore through beach nourishment or wetland restoration.[78] Beach nourishment is the process of adding sand onto beaches,[79] and is most commonly used on developed beaches.[80] The sand is usually acquired from dredged material from offshore areas and is pumped to the beach through a series of pipes.[81] Heavy machinery then moves the sand into the shape of the new beach, generally widening the beach 100 to 200 feet.[82] This process aims to preserve the ecology and natural landscape of the beach; however, it has the potential to adversely affect the wildlife of the beach and only provides a temporary solution to sea-level rise.[83] Additionally, soft armoring raises issues regarding the ownership of the newly developed or restored beach.[84]

2. Accommodation

Accommodation occurs when communities develop ways to continue to live in coastal areas where the shoreline has migrated inland.[85] This includes flood-proofing buildings and warning systems for flooding events.[86] Common forms of accommodation include elevating houses with stilts or pilings and floating homes.[87] However, accommodation does little to address sea-level rise, erosion, or flooding, so wetlands and beaches continue to migrate

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[75] *Id.* at 579.

[76] *Id.* at 580.

[77] J. Peter Byrne, *The Cathedral Engulfed: Sea-Level Rise, Property Rights, and Time*, 73 LA. L. REV. 69, 87 (2012).

[78] *Id.* at 93.

[79] Matthew Rupert, Note, *Beach Nourishment to the Rescue: Through an Extensive Regulatory Review Process, Beach Nourishment Can Restore and Protect Vital Sea Turtle Nesting Habitat*, 19 SE. ENV'T L. J. 327, 344 (2011).

[80] Rolling Easements, *supra* note 70, at 1.

[81] Rupert, *supra* note 79, at 344.

[82] *Id.* at 344-345.

[83] David Rusk, *Fix It or Forget It: How the Doctrine of Avulsion Threatens the Efficacy of Rolling Easements*, 51 HOUSTON L. REV. 297, 306 (2014).

[84] Byrne, *supra* note 77, at 94.

[85] Rolling Easements, *supra* note 70, at 1.

[86] IPCC, *supra* note 27, at 12.

[87] *Id.* at 27.

inwards.[88] Without addressing these problems, accommodation is not a sustainable response to sea-level rise.

3. Retreat

Retreat occurs when communities allow the shoreline to migrate inland, remove structures, and relocate.[89] This type of response generally occurs in undeveloped areas.[90] A common form of retreat regulation is establishing setbacks, which prohibit property owners from building structures seaward of an established line.[91] State legislatures typically establish this line based on the annual erosion rate,[92] or by setting a specific distance from the shoreline.[93] Private property owners typically tolerate setbacks, so long as they can build structures somewhere on their property.[94] While setbacks are usually viewed as a favorable response to sea-level rise and erosion, establishing a setback line can be rather difficult. The legislature has to balance several factors including: (1) private property interests; (2) public access to beaches; (3) erosion, which can be gradual or rapid; and (4) sea-level rise.[95]

II. PUBLIC VERSUS PRIVATE RIGHTS TO BEACHES

The boundary line between private and public property along coastal beaches is generally the "mean high water" line. This leaves the wet beach and open water accessible to the public, and the high dry sandy beach open only to the private property owner.[96] The mean high-water line constantly moves due to natural processes such as erosion, tides, and storms. As the sea-level continues to rise, the boundary between the water and the land will move inland. States that favor the public's right to access the beach, such as Texas, are likely to get numerous complaints from private property owners. For example, in *Borough of Harvey Cedars v. Karan*, the U.S. Army Corps of Engineers was constructing a long line of sand dunes to protect coastal landowners from flooding and storms, and to protect the beach from erosion.[97] In constructing the dunes, part of the plaintiff's private property was taken via

[88] Rolling Easements, *supra* note 70, at 1.
[89] *Id.*
[90] *Id.*
[91] Rusk, *supra* note 83, at 303.
[92] This is known as a floating setback.
[93] This is known as a fixed setback.
[94] Rolling Easements, *supra* note 70, at 4.
[95] Rusk, *supra* note 83, at 304.
[96] James G. Titus, *Rising Seas, Coastal Erosion, and the Takings Clause: How to Save Wetlands and Beaches Without Hurting Property Owners*, 57 MD. L. REV. 1279, 1291 (1998).
[97] Borough of Harvey Cedars v. Karan*,* 70 A.3d 524, 527 (N.J. 2013).

eminent domain and just compensation.[98] The plaintiff sued because the dune obstructed the beachfront view which lowered their property value.[99] The plaintiff did not want to allow testimony describing the potential benefits the dune would provide to the home. The court ruled that the benefits the dune provides to the property must be taken into consideration when determining just compensation.[100] The court in this case attempted to balance the mostly aesthetic interest of the private property owner with the protection of both the property and the beach.[101] This is one example of how balancing the interests of private property owners and the interests of the public can result in outcomes that leave both sides feeling unsatisfied.

A. Takings

Takings claims are one of the most common discussions surrounding regulations responding to sea-level rise.[102] Private property owners that are negatively impacted from a sea-level rise regulation generally claim a regulatory taking, leaving regulators apprehensive about potential liability and litigation.[103]

Under the Fifth Amendment, the government cannot take private property without compensating the owners of the property.[104] Takings are divided into two categories: physical takings and regulatory takings.[105] Physical takings occur when the government either seizes property or makes a permanent physical invasion of property.[106] Regulatory takings occur when laws or regulations restrict property rights in some way.[107] One of the most commonly known takings cases is *Penn Central Transportation Co. v. New York*, in which New York passed a historic preservation law that prohibited the construction of a skyscraper on top of Grand Central Station.[108]The Supreme Court created a balancing test that looks at the economic impact of the law, the owner's reasonable "investment-backed" expectations, and the

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[98] *Id.* at 528.
[99] *Id.*
[100] *Id.* at 532.
[101] *See generally id.*
[102] Byrne, *supra* note 77, at 72.
[103] *Id.*
[104] Mark D. Holmes, Comment, *What About My Beach House? A Look at the Takings Issue as Applied to the Texas Open Beaches Act*, 40 HOUS. L. REV. 119, 123 (2003).
[105] *Takings,* LEGAL INFO. INST., https://www.law.cornell.edu/wex/takings [https://perma.cc/WNP4-PZ2H] (last visited Aug. 14, 2020).
[106] *Id.*
[107] *Id.*
[108] Penn Central Trans. Co. v. New York, 438 U.S. 104 (1978).

character and purpose of the government action.[109] The Court also established two circumstances in which a regulation is a taking per se: when a regulation "authorizes a permanent physical invasion" and when a regulation "deprives the owner of all economic value."[110]

While numerous takings cases have challenged regulations involving the governments' responses to sea-level rise, hard armoring and retreat pose the most takings issues. In the case of *Lucas v. South Carolina Coastal Council*, South Carolina passed an act that prohibited constructing permanent structures seaward of a baseline to protect the coast from erosion.[111] Lucas owned undeveloped property which he intended to develop into single family homes. The new regulation prohibited him from developing because his property was located seaward of the baseline.[112] Lucas filed suit, claiming the new regulation was a taking without just compensation because it completely destroyed his property value.[113] The Supreme Court agreed and ruled that the regulation constituted a taking because Lucas was forced to "sacrifice all economically beneficial uses in the name of the common good."[114]

However, in order for a regulation to be considered a taking under *Lucas*, the owner must have lost the *entire* property value.[115] If the entire property value is not lost, the regulation is analyzed under the *Penn Central* balancing test. The Court in *Lucas* also rejected the South Carolina Supreme Court's decision that the act was a "reasonable environmental measure" with the purpose of protecting the public from harm.[116] Rejecting this ruling made passing new regulations that limit construction on coastal properties for the purpose of preventing environmental harm "constitutionally impracticable."[117]

Takings issues commonly arise from regulations preventing private property owners from building armoring structures, such as in *Lucas.* However, takings issues can also stem from government-authorized construction that causes permanent flooding to the surrounding land.[118] In

[109] Byrne, *supra* note 77, at 86.
[110] *Id.*
[111] This baseline was established by the South Carolina Coastal Council, and it connected the "landward most 'points of erosion . . . during the last forty years.'" Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1008 (1992).
[112] *Id.* at 1007.
[113] *Id.*
[114] *Id.* at 1019.
[115] *Id.* at 1014-1019.
[116] Byrne, *supra* note 77, at 98.
[117] *Id.*
[118] Byrne, *supra* note 77, at 88.

Arkansas Game and Fish Commission v. United States, the U.S. Army Corps of Engineers temporarily flooded the Arkansas Game and Fish Commission's timber forest during the growing season for six consecutive years.[119] This flooding was the result of the Corps deviating from the Water Control Manual, which set rates for releasing water from a dam upstream of a timber forest.[120] The Commission claimed that the flooding constituted a taking and that they were entitled to just compensation.[121] The Supreme Court found that government-induced flooding is only a taking if "the flooding is 'permanent or inevitably recurring.'"[122] However, the Court also held that temporary government-induced flooding *may* be compensable.[123] As the sea-level continues to rise, flooding will become more common and more severe. Under the holding in *Arkansas,* the government will be limited in regulating hard armoring structures. Constructing seawalls or levees that can cause flooding on private land poses takings claims, which limits regulators' options in addressing sea-level rise.

B. Public Trust Doctrine

The general idea behind the public trust doctrine is that certain natural resources, such as bodies of water, should belong to the public without limitation by private parties.[124] While the doctrine has roots in Roman law, the idea that the public has access to bodies of water is fundamental to most civilizations throughout history.[125] In the United States, the modern idea of the public trust doctrine is described in the Supreme Court case *Illinois Central Railroad Co. v. Illinois*.[126] This case involved a dispute over the control of the bed of Lake Michigan. The court held that "the ownership of and dominion and sovereignty over lands covered by tide waters" belonged to the State of Illinois and was to be "held in trust for the people."[127] Further, the court ruled that any title held in trust for the people is inalienable and can

[119] Ark. Game & Fish Comm'n v. United States, 568 U.S. 23, 29 (2012).
[120] *Id.* at 28.
[121] *Id.* at 29.
[122] *Id.* at 27.
[123] *Id. at 38.*
[124] The traditional public trust doctrine was first described by Joseph Sax in 1970. *See* Joseph L. Sax, *Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471 (1970); Charles F. Wilkinson, *The Headwaters of Public Trust: Some Thoughts on the Source & Scope of the Traditional Doctrine*, 19 ENV'T L. 425, 426 n.3 (1989).
[125] Wilkinson, *supra* note 124, at 429-30.
[126] Illinois Central R.R. Co. v. Illinois, 146 U.S. 387 (1892).
[127] Joseph D. Kearney & Thomas W. Merrill, *The Origins of the American Public Trust Doctrine: What Really Happened in Illinois Central*, 71 U. CHI. L. REV. 799, 801 (2004).

be "resumed at any time."[128] Generally stated, the federal public trust doctrine says that the government holds certain lands "in trust" for current and future generations. This right supersedes any private property rights. and the government has a duty to "safeguard the long-term preservation of those resources for the benefit of the general public."[129]

Some form of the public trust doctrine applies in every state, which has consequently led to a degree of variability in applications of the doctrine.[130] States vary in their definitions of "tidelands"; for example, tidal lands in New Jersey include the seashore and the sandy area up to the nearest public road.[131] Other states, such as New Hampshire and Maine, do not include the dry sandy areas because courts thought that including these areas would infringe on private owners' property rights.[132] States also vary in what constitutes public use. Most states have expanded the definition of public use from navigation, fishing, and commerce to include recreational activities, wildlife habitat, ecological conservation, and aesthetic or scenic uses.[133]

States also have the power to convey public trust property to private owners, but still retain a duty to protect public uses of these lands.[134] This is because courts recognize a "split title" where the private parties hold a private title and the states hold a public title in trust.[135] Other states have held that the state can "extinguish public rights of access,"[136] but that the public title only ends if the land is "no longer burdened by the public trust doctrine."[137] Despite state variability, courts tend to follow the general trend of expanding, not limiting, the public trust doctrine.[138]

However, the boundaries of the mean high tide lines and the mean low tide lines are constantly changing from natural occurrences such as tides, currents, and storms, and from human intervention, such as beach development and anthropogenic climate change.[139] Common law addresses

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[128] Illinois Central R.R. Co., 146 U.S. at 455.

[129] Richard M. Frank, *The Public Trust Doctrine: Assessing Its Recent Past & Charting Its Future*, 45 U. CAL. DAVIS L. REV. 665, 667 (2012).

[130] Wilkinson, *supra* note 124, at 425.

[131] Frank, s*upra* note 129, at 674.

[132] *Id.*

[133] Liss, *supra* note 13, at 10039.

[134] *Id.* at 10038.

[135] *Id.*

[136] JOSEPH SINGER ET AL., PROPERTY LAW: RULES, POLICIES, AND PRACTICES 79 (Wolters Kluwer, 6th ed. 2014).

[137] Liss, *supra* note 13, at 10039.

[138] Rusk, *supra* note 83, at 302.

[139] Celeste Pagano, *Where's the Beach? Coastal Access in the Age of Rising Tides*, 42

whether the property line moves along with changes to the shoreline under the doctrines of erosion, accretion, and avulsion.[140] Accretion, the addition of land to a shoreline, and erosion, the wearing away of soil, rock, or land, are both changes that occur gradually. As the shoreline advances or retreats, the property lines that run along the shoreline advance or retreat with the shoreline.[141] This doctrine is considered fair because coastal property owners bear both the risk of losing land through erosion and the potential benefit of gaining land through accretion.[142]

Conversely, when a shoreline moves rapidly, either landward or seaward, the movement of the property line is governed under the common law doctrine of avulsion.[143] This doctrine holds that the property line does not move, regardless of the change in shoreline.[144] For example, a property line would not move for either a storm destroying most of a beach nor a beach restoration project that increases the land on the beach, as these are both considered avulsion events.[145] This doctrine was challenged in the U.S. Supreme Court case *Stop the Beach Nourishment v. Florida Department of Environmental Protection*, where a beach nourishment project in Florida planned to add seventy-five feet of sand to extend the beach.[146] Nourishment projects such as these are considered an avulsion event so, under the law of avulsion, the property line would not increase with the land.[147] When performing a beach nourishment project workers establish an erosion control line, which replaces the high tide line as the boundary between private and public property.[148] Once this line is established, the private property owners lose their contact with the water and can no longer receive land from accretion.[149]

The plaintiffs in this case viewed these losses as an unconstitutional taking, but the Supreme Court ruled that the doctrine of avulsion allows the state to "reclaim the restored beach on behalf of the public."[150] Similar to the doctrines for erosion and accretion wherein the private property owner stands

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SW. L. REV. 1, 11 (2012).

[140] *Id.* at 12.

[141] Josh Eagle, *Are Beach Boundaries Enforceable? Real-Time Locational Uncertainty and the Right to Exclude*, 93 WASH. L. REV. 1181, 1194 (2018).

[142] Pagano, *supra* note 139, at 12.

[143] Eagle, *supra* note 143, at 1194.

[144] Pagano, *supra* note 139, at 12.

[145] *Id.*

[146] Stop the Beach Nourishment v. Florida Dep't of Env't Prot., 560 U.S. 702, 711 (2010).

[147] *Id.* at 709.

[148] *Id.* at 710.

[149] *Id.*

[150] *Id.* at 712.

to either lose or gain land, the state stands to gain or lose land for the public with the rapid advance or retreat of the shoreline under the doctrine of avulsion.[151]

C. Easements

The public trust doctrine does not provide the public with a right to access privately owned beaches that are beyond the high tide line. However, public access to these beaches is permitted by obtaining easements through custom, dedication, or prescription.

The doctrine of custom states that the "customary use of land operating since 'time immemorial' can have the effect of law."[152] This is commonly seen in Hawaii where Native Hawaiian custom gives the public access to all parts of the beach up to the "highest wash of the waves."[153] The doctrine of custom originated in English common law, which recognized that rights to a certain piece of land were established through "continuous transgenerational use."[154] A community can establish customary rights by showing that the use is "ancient, continuous, peaceable, reasonable, certain, obligatory, and . . . in conformance with other customs and laws."[155] Easements by custom for beaches usually only apply to the wet-sand portion of the beach, but some states have found easements by custom for the dry-sand portions. Easements by custom are not widely adopted and, in most states, are generally restricted to specific beaches.[156]

Easements by dedication are more widely accepted than easements by custom. An easement by dedication occurs when a private property owner dedicates a piece of property to the public.[157] A dedication is defined as a "donation of land or the creation of an easement for public use,"[158] and the dedication can be express or implied.[159] While an express dedication usually occurs through a deed or other written document, implied dedications are more difficult to establish.[160] In Texas, a dedication must satisfy the following four elements: (1) the owner making the dedication must have title to the land

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[151] Pagano, *supra* note 139, at 14.
[152] *Id.* at 15.
[153] *Id.*
[154] Rusk, *supra* note 83, at 312.
[155] *Id.*
[156] Pagano, *supra* note 139, at 16.
[157] Holmes, *supra* note 104, at 125.
[158] *Id.*
[159] Pagano, *supra* note 139, at 16.
[160] Holmes, *supra* note 104, at 125.

prior to the dedication; (2) the dedication must serve a public purpose; (3) the owner must make either an express or implied offer to dedicate his land; and (4) the public must accept the offer.[161]

Easements by prescription equate public use of a property for an extended period of time with obtaining a grant from the property owner.[162] The public can show an easement by prescription by proving the "actual, continuous, uninterrupted for the statutory period, and adverse" use of the land (or beach).[163] Land use is adverse when the public's use of the land differs from the landowner's use. If adverse use cannot be shown, claiming a prescriptive easement can be more difficult for the public.[164] Because the public uses beaches in Texas in numerous ways, such as fishing, tanning, swimming, and other recreational activities, the public will almost always be able to show different use from the owner.[165]

These common law doctrines provide the public with an easement to access beaches, and these easements adequately balance public and private interests in a predictable environment. Because climate change is creating highly variable weather patterns that will likely result in more sudden shoreline changes, these doctrines may have to adapt to ensure the balance of private property rights and the public's right to access the beach. One such change is the idea that established easements move with the shoreline.[166]

D. Rolling Easements

A rolling easement is "a legally enforceable expectation that the shore or human access along the shore can migrate inland instead of being squeezed between an advancing sea and a fixed property line or physical structure."[167] Rolling easements are rooted in the public trust doctrine. They were originally proposed in the 1990s as an alternative method for dealing with sea-level rise to protect coastal habitats and mitigate the ecological impacts from armoring projects.[168] Rolling easements allow public access easements to move with

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[161] Moody v. White, 593 S.W.2d 372, 378 (Tex. Civ. App. 1979).

[162] Holmes, *supra* note 104, at 128.

[163] Pagano, *supra* note 139, at 17. These are also the elements to prove adverse possession.

[164] *Id.*

[165] Holmes, *supra* note 104, at 131.

[166] Rolling Easements, *supra* note 70, at 21.

[167] *Id.* at 7.

[168] Richard J. McLaughlin, *Rolling Easements as a Response to Sea Level Rise in Coastal Texas: Current Status of the Law after* Severance v. Patterson, 26 J. LAND USE 365, 369 (2011).

the boundary line as the boundary moves inland.[169] Rolling easements also expand common law doctrines to allow public access easements to roll with "accretion, erosion, or avulsion."[170]

Rolling easements are generally implemented in one of four ways: (1) prohibiting armoring structures; (2) purchasing a property right to take possession of privately owned land when the sea-level rises by a specified amount; (3) including language in a deed that the boundary between public and privately owned lands will migrate inland; or (4) passing a statute that states all coastal land is subject to rolling easements.[171] Using the first method, the shoreline can continue to migrate inward, conserving both the beach and the public's right to access.[172] If this method is applied to bay shores and the coastal shoreline, it could protect wetlands, preserving the important functions that they provide to coastal communities.[173] The second method can be implemented by transferring property to a local land trust as the sea-level rises.[174] The local land trust can then restore the land or allow the shoreline to continue moving inland. For example, a property that is one meter beyond the high tide line is transferred to the local land trust when the sea rises one meter. Because property owners expect to transfer the land, most will not invest in shoreline armoring. Similarly, including language in a deed that the boundary line will move inland and passing a statute that subjects all coastal land to rolling easements, deters coastal property owners from investing in shoreline armoring because the deed gives them notice that their property line will likely move inland as the sea rises.[175]

Coastal property owners generally lose both the right to exclude the public from their property and the right to protect their property with shoreline armoring structures when rolling easements are implemented.[176] Because the property owners cannot protect their property from the rising sea, it may eventually force them to abandon their property.[177] Additionally, the right to exclude is commonly thought of as one of the most important rights of property owners, and rolling easements have the potential to give the public

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[169] Rusk, *supra* note 83, at 308.

[170] Pagano, *supra* note 139, at 17.

[171] Carolyn Ginno, *Do Mess with Texas: Why Rolling Easements May Provide a Solution to the Loss of Public Beaches Due to Climate Change-Induced Landward Coastal Migration*, 8 SAN DIEGO J. CLIMATE & ENERGY L. 225, 239-40 (2017).

[172] Rolling Easements, *supra* note 70, at 50.

[173] *Sea Level Changes and the Texas Coastal Environment*, *supra* note 40, at 4-5.

[174] Rolling Easements, *supra* note 70, at 50.

[175] *Id.* at 64.

[176] Rusk, *supra* note 83, at 308.

[177] *Id.* at 309.

access to areas that were once private property.[178] So, while rolling easements uphold the public trust doctrine, they also shift the risk of losing land to private property owners.[179]

III. REGULATION OF TEXAS COASTLINES

Texas has used the rolling easement doctrine extensively, although the focus has been to protect public beach access instead of the environment.[180] Beaches in Texas have been used for "transportation, camping, fishing, swimming, and other public uses," which are fundamental to Texans. Historically, public and private parties believed that the state held both wet and dry portions of beaches in trust for the public.[181] However, the Texas Supreme Court ruled that the state only owned the wet sand portion of the beach, while private beachfront property owners retained ownership over the dry sand portion above the mean high tide line.[182] The general public believed they had the right to use the entire beach and therefore disagreed with the decision.[183] To assuage the public's concerns following the decision, Texas passed the Texas Open Beaches Act ("TOBA") in 1959.[184]

A. Texas Open Beaches Act

TOBA gives the public the "free and unrestricted right of ingress and egress to the larger area extending from the line of mean low tide to the line of vegetation bordering on the Gulf of Mexico,"[185] and gives the State the power to remove a structure if (1) the public has access to the beach by public road or ferry; (2) the public has acquired an easement to access or use the beachfront area by custom, dedication, or prescription; and (3) the property is located on the public beach.[186] TOBA also codifies the common law doctrines that provide public access by saying the public has "a right of use or easement to or over an area by prescription, dedication, or has retained a right by virtue of continuous right in the public."[187] Additionally, TOBA implies a type of

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[178] *Id.*
[179] *Id.*
[180] McLaughlin, *supra* note 170, at 369-70.
[181] *Id. at 370.*
[182] Luttes v. State, 324 S.W.2d 167, 169 (Tex. 1958).
[183] McLaughlin, *supra* note 170, at 370.
[184] *Id.*
[185] Tex. Nat. Res. Code Ann. § 61.011(a) (Vernon 2019).
[186] Holmes, *supra* note 104, at 124.
[187] § 61.011(a) (Vernon).

rolling easement that prohibits people from building any shoreline barrier that would interfere with the public's right to access.[188]

In order to "further strengthen the public easement," the Texas legislature amended TOBA to require contracts conveying land "located seaward of the Intracoastal Waterway" to include language that "expressly acknowledges that the purchaser has acquired an easement up to the vegetation line."[189] Additionally, these contracts must contain, "in capital letters, structures erected seaward of the vegetation line (or other applicable easement boundary) or that become seaward of the vegetation line as a result of natural processes such as shoreline erosion are subject to a lawsuit by the state of Texas to remove the structures."[190] These amendments were enacted to put purchasers of coastal property on notice that their structures may be removed if they violate TOBA. Further amendments added a presumption of a public easement in "beach areas located seaward of the vegetation line."[191] These amendments ensure that private property owners who purchased beachfront property have notice that they lose the right to maintain or own the property if it "becomes located seaward of the vegetation line" as a result of natural processes.[192] Because the property owners have notice, they waive any possible takings claims, meaning that any beachfront property purchased after these amendments will not constitute a taking.[193] Property owners who purchased beachfront property prior to these amendments can raise potential takings claims, analyzed under the *Lucas* test.[194]

Texas courts are generally deferential to TOBA policies and tend to favor the public easement over private property owners.[195] In *Feinman v. State*, a hurricane caused several houses to become situated seaward of the vegetation line.[196] The Texas Attorney General did not allow the property owners to repair the houses and threatened to remove the houses from the beach.[197] The main issue in this case was whether the State, under TOBA, had to re-establish the public's easement every time the vegetation line moves, or if the easement automatically rolls with the vegetation line.[198] The court ruled that a rolling

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[188] § 61.013 (a) (Vernon).
[189] McLaughlin, *supra* note 170, at 372.
[190] § 61.025 (Vernon).
[191] McLaughlin, *supra* note 170, at 373.
[192] Holmes, *supra* note 104, at 142.
[193] *Id.*
[194] *Id.* at 143.
[195] McLaughlin, *supra* note 170, at 373.
[196] Feinman v. State, 717 S.W.2d 106, 107 (Tex. App. 1986).
[197] *Id.*
[198] *Id.* at 108.

easement was implicit in the statute and the state was not responsible for reestablishing the easement each time the vegetation line moved.[199]

The court in *Arrington v. Texas General Land Office* upheld this decision, wherein the court found the state did not have to prove the public used the new area established by the rolling easement.[200] Further, Texas courts have held that TOBA applies to "anything that interferes with the public's use of the easement," indicating that both existing and new structures fall under the Act.[201] After the ruling in *Feinman*, many beachfront property owners feared the loss of their land from a storm or hurricane.[202] Homeowners also feared that the state would not compensate them if their homes were removed under TOBA, which could potentially be classified as a regulatory taking.[203] Despite these fears, recent court decisions have severely undermined the public's right to access in favor of private property owners, leaving Texas in a bad position to deal with rising sea-levels.

B. Severance v. Patterson

In *Severance v. Patterson*, the plaintiff, Carol Severance, owned three beachfront properties in Galveston, Texas, each with a single-family home.[204] Under TOBA, the public has access to the sandy part of the beach between the mean low tide mark and the vegetation line if the beach is state-owned or the public has obtained an easement through prescription, dedication, or custom.[205] When Severance originally purchased the three properties, the houses were beyond the vegetation line, but the vegetation line moved inward due to natural causes.[206] After a survey confirming that the houses were encroaching on the public easement, the General Land Office informed Severance that state officials could require her to remove "any portion of the home that encroached on the public beach."[207] Shortly after this notice, Severance was contacted and offered $40,000 for the removal of one of the homes.[208] Severance then filed suit seeking declaratory and injunctive relief to prevent the state from enforcing the public easement.[209] In the rehearing of

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[199] *Id.* at 110.
[200] Arrington v. Tex. Gen. Land Office, 38 S.W.3d 764, 766 (Tex. App. 2001).
[201] McLaughlin, *supra* note 170, at 375-76.
[202] Holmes, *supra* note 104, at 137.
[203] *Id.*
[204] Severance v. Patterson, 370 S.W.3d 705, 711 (Tex. 2012).
[205] § 61.011 (Vernon).
[206] *Severance*, 370 S.W.3d at 711-12.
[207] Severance v. Patterson, 485 F. Supp. 2d 793, 798 (S.D. Tex. 2007).
[208] *Severance*, 370 S.W.3d at 720.
[209] *Id.* at 712.

her case,[210] the court found three main issues: (1) whether Texas recognizes a rolling easement with a boundary that "migrates solely according to naturally caused changes in the location of the vegetation line, without proof of prescription, dedication, or customary right in the property so occupied;" (2) whether the rolling easement is recognized under common law or from a construction of TOBA; and (3) whether beachfront property owners affected by rolling easements are entitled to compensation.[211]

The court ruled that easements do not roll with vegetation lines moved through avulsive events, like the hurricane in this case.[212] Additionally, the court held that the state must prove that the easement is established by dedication, prescription, or custom for each individual case where an easement is destroyed through an avulsive event.[213] The state is highly unlikely to meet this requirement because, until the hurricane moves the vegetation line, the public has reason to use that portion of the beach.[214]

Severance v. Patterson overturned years of state precedent and created a legal difference between avulsion and erosion.[215] Texas addressed this issue in a prior case, *City of Corpus Christi v. Davis*, where a private landowner wanted compensation for a large portion of his property that disappeared, mainly from hurricanes.[216] The State filled this area for use as a public park, but the landowner claimed the property was still his because the loss of land resulted from avulsion.[217] The court held that loss of land through avulsion should be treated no differently than loss of land through erosion.[218] Additionally, the court found that the private landowner failed to prove that the loss of land was caused by a single sudden avulsive event, as opposed to erosion or a combination of the two.[219] This distinction in light of climate change is particularly detrimental to the public's right to access.[220] Climate change is causing an increase in strength and frequency of storms, which leads

[210] Her original case was dismissed for lack of ripeness, as the state officials had not yet filed any enforcement actions against her. McLaughlin, *supra* note 170, at 378.
[211] *Severance*, 370 S.W.3d at 708.
[212] *Id.*
[213] *Id.*
[214] *Id.*
[215] McLaughlin, *supra* note 170, at 380.
[216] Corpus Christi v. Davis, 622 S.W.2d 640, 642 (Tex. App. 1981).
[217] *Id.*
[218] *Id.* at 646.
[219] *Id.*
[220] McLaughlin, *supra* note 170, at 386.

to more avulsive events. This case law makes it more difficult for states to maintain a right of access to the beach for the public.[221]

This case also changed easement law by finding that an easement's boundaries are fixed.[222] Justice Lehrmann argues in the dissent that by adopting this view, the majority "renders the Open Beaches Act's invitation to prove the existence of an easement 'by prescription, dedication, [or] . . . continuous right in the public' meaningless."[223] The court failed to acknowledge, as other coastal states had, that easements on coastal shores should not be treated in the same manner as inland easements.[224] For example, in North Carolina, easements on coastal shoreline are not "treated as precise permanent boundaries" but instead shift along with the "dynamic natural changes of the beachfront."[225] Similarly, Georgia beachfront easements allowing public access are "subject to expansion or contraction by the forces of nature."[226]

Ultimately, this decision strongly favored private property owners over the public's right to access the beach. In creating a legal difference between avulsive and erosion effects, Texas severely weakened its ability to deal with sea-level rise. By diminishing the application of rolling easements, private property owners may partake in more shoreline armoring, further damaging the Texas coast.

IV. POLICY CONSIDERATIONS FOR TEXAS

Severance v. Patterson gave Texas the opportunity to address climate change and enforce the public's right to access the beach. Instead, the Texas Supreme Court gave private property owners the ability to shrink the public's beach access. After *Severance v. Patterson*, TOBA was amended by House Bill 3459.[227] This bill gave decision making authority to the General Land Office, allowing the office to suspend the determination of the vegetation line after it is destroyed by a "sudden meteorological event."[228] The Land Office

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[221] *Id.*

[222] *Id.* at 385.

[223] *Severance*, 370 S.W.3d at 752.

[224] *See* Corpus Christi v. Davis, 622 S.W.2d 640 (Tex. App. 1981).

[225] McLaughlin, *supra* note 170, at 386.

[226] *Id.* (quoting Bruce v. Garges, 379 S.E.2d 783, 785 (Ga. 1989)).

[227] *Rolling Easements & the Texas Open Beaches Act*, TEXAS A&M AGRILIFE, https://coastalresilience.tamu.edu/home/wetland-protection/policy-framework/bay-and-ocean-side-submerged-lands- some-fundamental-differences-in-law-and-management/the-texas-open-beaches-act-an-exceptional-example-of-a-rolling-easement/ [https://perma.cc/8THC-UX85] (last visited May 3, 2020).

[228] *Id.*

can then determine a new location for the vegetation line, which is imperative when deciding how public access easements should roll.[229] One of the main issues in *Severance v. Patterson* was "whether Texas recognized a rolling easement with a boundary that migrates solely according to naturally caused changes in the location of the vegetation line, without proof of prescription, dedication, or customary rights in the property so occupied."[230] By giving the General Land Office this authority, the Texas legislature took a step towards protecting beaches.

A. Texas Coastal Resiliency Plan

When Hurricane Harvey made landfall in 2017, it hit the uninhabited and undeveloped San Jose Island.[231] This island was healthy and had "robust natural beach and dune systems," which provided a significant buffer for the storm surge and mitigated the damage done to the surrounding community.[232] This shows that keeping coastal wetlands and the surrounding ecology healthy is important in addressing sea-level rise and other climate change effects. Prior to Hurricane Harvey, the Texas General Land Office released a coastal resiliency master plan outlining goals and plans for protecting the Texas coastline from erosion, hurricanes, flooding, habitat degradation, and sea-level rise.[233] This report highlights the insufficiencies of a "piecemeal approach to coastal restoration" and "coordinates the efforts of many parties, produces carefully selected and evaluated projects, and provides efficient and cost-effective methods to achieve a resilient coast."[234] The report outlines several projects to restore the Texas coastline and focuses primarily on restoring the coastline to a more natural ecology through wetland conservation, delta and lagoon restoration, oyster reef creation and restoration, and rookery island creation and restoration.[235]

These projects aim to improve water and air quality, preserve breeding and nursery areas for commercial fish, increase habitat diversity, and bolster the ecotourism industry.[236] Additionally, by restoring deltas and lagoons, this plan will have a positive downstream effect because deltas and lagoons support the health of coastal wetlands, bird rookeries, and other coastal

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[229] *Id.*
[230] *Id.*
[231] Master Plan 2019, *supra* note 37, at 26.
[232] *Id.*
[233] Master Plan 2017, *supra* note 63, at 1.
[234] *Id.* at 3.
[235] *See generally* Master Plan 2017, *supra* note 63.
[236] *Id.*

habitats.[237] Coastal wetlands provide numerous benefits such as purifying water, acting as a buffer for storms and flooding, and absorbing carbon dioxide, and focusing on restoring coastal habitats to a more natural ecology will directly benefit Texas coasts.

The Texas General Land Office released another resiliency plan in 2019, which further outlined plans to address coastal infrastructure and increased flood risks while still focusing on preserving natural habitats.[238] This plan outlined a subsidence study and monitoring project to gather information on subsidence along the Texas coast. A major contributor of sea-level rise in Texas is land subsidence from extracting groundwater, oil, and natural gas, but there is limited information on subsidence for the entire Texas coast.[239] Funding subsidence research projects can provide coastal communities with historical subsidence data and future subsidence predictions, which will help communities develop better policies to address subsidence-caused sea-level rise.[240]

B. Regulating Land Development

To further protect beaches and public access, the Texas legislature could pass regulations limiting where and how much coastal land can be developed. One way to regulate land development is increasing construction setbacks on coastal shorelines.[241] Setbacks prohibit property owners from building shoreline armoring structures "seaward of a legislatively demarcated line."[242] There are currently no mandatory setback regulations in Texas, so increasing construction setbacks could also increase the erosion buffer[243] and help protect wetlands. Additionally, a larger setback can help mitigate the risk that homes will be removed under TOBA.[244] Setbacks have been used in the city of Satellite Beach, Florida, which enacted a mandatory setback that limits "construction, reconstruction, modification, repair, or replacement of principle or accessory structures" east of the highway that runs along the coast.[245] However, setbacks are generally disfavored in Texas because private

[237] *Id.* at 83.
[238] *See* Master Plan 2019, *supra* note 37.
[239] *Id.* at 101.
[240] *Id.*
[241] Kristin R. Hicks, *Providing Beach Access in Texas: The Implications of Severance v. Patterson on the Texas Open Beaches Act* 83 (Fall 2012) (unpublished master's thesis, University of Delaware).
[242] Rusk, *supra* note 83, at 303.
[243] The amount of land that is eroded before the water reaches structures.
[244] Hicks, *supra* note 243, at 84.
[245] Erin L. Deady, *New Evolutions in the Law of Climate Change and Sea-Level Rise*, FL. BAR J. 55, 57 (2020).

property owners view them as highly restrictive on their rights.[246] To counter this view, Texas could adopt a special permitting system, similar to that of South Carolina, where a special permit can be issued that allows the construction or reconstruction of a structure so long as the structure is not on a "primary oceanfront sand dune or on the active beach."[247] If the beach erodes past the permitted structure, then the permittee "agrees to remove the structure from the active beach . . . "[248] Furthermore, the use of the property cannot be "detrimental to the public health, safety, or welfare."[249]

C. Rolling Easement Regulations

Rolling easements are more effective when combined with other regulatory approaches, such as beach nourishment.[250] Beach and dune restoration projects can address erosion and sea- level rise but tend to be extremely expensive.[251] Beach nourishment projects need tons of beach-quality sand which, in Texas, is sourced from offshore sand deposits. It can cost anywhere from $10 to $20 million to transport and restore a two-mile stretch of beach using this method.[252] Additionally, after the *Severance v. Patterson* decision in 2012 required the public to re-establish beach access easements after an avulsive event, the previous General Land Office commissioner cancelled a $40 million beach restoration project in Galveston.[253] The project was cancelled because state law prohibits using public money to benefit private property.[254]

These types of projects are not prioritized due to both the high price tag and the resulting uncertainty of property rights. To remedy this, the Texas legislature could amend TOBA to ensure that public access easements to the beach roll with avulsive events. This, combined with a beach nourishment project, would result in more land for the public and private property owners, and a defense against erosion and sea-level rise.

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[246] *Id.*
[247] S.C. Code Ann. §48-39-290(D) (2016).
[248] *Id.*
[249] *Id.*
[250] Rusk, *supra* note 83, at 329.
[251] Master Plan 2017, *supra* note 63, at 90.
[252] *Id.*
[253] Harvey Rice, *Mayor Faults 'Blow to Galveston' After State Halts Beach Project*, CHRON (Nov. 15, 2010) https://www.chron.com/business/real-estate/article/Mayor-faults-blow-to-Galveston-after-state-1708528.php [https://perma.cc/4UGS-JLMF].
[254] *Id.*

Another option would be to give private property owners a choice to reclaim their lost property.[255] Many states that follow the doctrine of avulsion give private property owners a reasonable amount of time to fill their land. After that time has passed, the public access easement rolls back if the land was not reclaimed.[256] For example, if Carol Severance in *Severance v. Patterson* had chosen to fund a private nourishment project to reclaim her land after the hurricane, she would not have risked her property. If she had chosen not to fill the land, the public easement would roll, and she would lose her property to the public. In giving the property owner the right to reclaim their land, it shifts the burden back to the private property owner, effectively bypassing the *Severance v. Patterson* decision.

D. Reducing Incentives for Purchasing Coastal Properties

Currently, there are numerous programs that property owners can use to manage the risks to coastal property, such as storms and flooding. For example, the National Flood Insurance Program ("NFIP") provides insurance for property owners in areas susceptible to flooding.[257] NFIP is managed by the Federal Emergency Management Agency ("FEMA"), which subsidizes insurance rates in flood risk areas "in exchange for the adoption of voluntary floodplain management actions by local governments."[258] This program minimizes the financial risk of purchasing and developing in areas that are prone to flooding and storms.[259] After a large storm, coastal property owners expect to have the cost of repair or rebuilding covered by NFIP, as opposed to bearing the cost themselves.[260] However, the NFIP is losing money due to rising costs of development and reconstruction, increasing damage caused by more frequent flooding, and repairing the same properties multiple times.[261] Texas could address this issue by limiting the amount of insurance coastal properties can receive for damage from flooding and storms. By shifting the financial burden back onto property owners, developing on the coast will become riskier, and potential buyers and developers will be disincentivized to buy or develop coastal property.

Texas could also expand the risk disclosure requirements for coastal property sellers to ensure that potential buyers are aware of the risks of coastal

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[255] Rusk, *supra* note 83, at 330.
[256] Rolling Easements, *supra* note 70, at 20.
[257] Hicks, *supra* note 244, at 86.
[258] *Id.*
[259] *Id.*
[260] *Id.*
[261] *Id.* at 87. The number of repetitive loss properties (properties that have been damaged and repaired by NFIP multiple times) is estimated to have increased by over 50%.

property. This was adopted in TOBA, which required land purchase contracts to include language that "expressly acknowledges that the purchaser has acquired an easement up to the vegetation line," and "structures erected seaward of the vegetation line (or other applicable easement boundary) or that become seaward of the vegetation line as a result of natural processes such as shoreline erosion are subject to a lawsuit by the state of Texas to remove the structures."[262] These provisions in TOBA highlighted the risk that property owners could potentially lose some of their land.

Another regulation that requires disclosure was passed by Texas in 2019, Senate Bill 339.[263] This bill requires homeowners to disclose whether their home is located "wholly or partly" in a 500-year flood plain, in a flood pool, in a reservoir or five miles downstream of a reservoir, if the home "may flood under catastrophic circumstances," and "whether the home has flooded in a flood event."[264] Prior to this bill, homeowners only had to disclose whether the home was in a 100-year flood plain.[265] Increasing the disclosure requirements also increases the difficulty of selling homes that are at a higher risk of flooding.[266] Texas could further expand the disclosure requirements for coastal properties by requiring homeowners to disclose risks associated with sea level rise and other coastal hazards in addition to the TOBA requirements. Requiring more risk disclosures allows potential coastal property owners to be put on notice about the hazards of owning coastal property.

CONCLUSION

Sea-level rise will continue to cause tidelines to creep further inland. Texas has more than 1,000 square miles of land that lie less than five feet above the high tide line. Within those 1,000 square miles is $9.6 billion in property value, home to more than 45,000 people and 37,000 homes. These lands sit on the coast of the Gulf of Mexico, making them especially vulnerable to sea level rise. Property owners are watching their property line inch closer to their homes, while public beach goers face trespassing issues and a loss of public access to beaches. As of now, there is no foreseeable end

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[262] Tex. Nat. Res. Code § 61.025.

[263] 2019 Tex. Gen. Laws 1337.

[264] *Id.*

[265] A 100-year floodplain is "an area, typically along a river or bayou, that has a 1% chance of flooding every year." Lara Korte & Connie Hanzhang Jin, *After Harvey Surprised Thousands With Unexpected Flooding, New Law Aims to Better Inform Homebuyers*, TEXAS TRIBUNE (Aug. 22, 2019) https://www.texastribune.org/2019/08/22/texas-law-requires-buyers-to-disclose-flood-risks/ [https://perma.cc/6TME-UVZC].

[266] *Id.*

to climate change, meaning that there will be stronger storms, more flooding, and more property disputes. Texas must decide how to balance the interests of private property owners and the public's right to access the beach.

Texas is not alone in balancing private property rights and public access, with thirty other coastal states facing the same or similar issues. Yet balancing these interests is not the only issue, as several alternative measures to mitigate sea-level rise from impacting waterfront properties can have detrimental ecological effects on the coastal environment. Texas has addressed this in a coastal resiliency plan that outlines several projects to restore their state coastlines. This plan highlights the need to maintain a healthy coastal ecosystem, which will provide a powerful buffer from the severe storms and increased flooding associated with sea-level rise and climate change. However, the coastal resiliency plan does not address how the projects affect property rights. Under the current regulatory scheme, Texas favors private property owners over the public.

In *Severance v. Patterson*, the Texas Supreme Court chose to give the benefit to private landowners by creating a legal difference between avulsive and erosion effects. The court also ruled that these public access easements would have to be re-established by the public, and current easement law in Texas makes this difficult and places an unreasonable burden on the public. After *Severance v. Patterson*, Texas has tried to protect its beaches by giving authority to the General Land Office to suspend the determination of the boundary line after a "sudden meteorological event." While this is a step towards protecting public access to beaches, Texas communities can go further and should create regulations that shift the burden of reclaiming land back to private property owners, enact more stringent construction setbacks or permitting procedures, and require more risk disclosure for potential property owners buying coastal properties.

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THE DEVELOPMENT OF INDIGENOUS ENVIRONMENTAL LAW IN THE UNITED STATES: FROM THE NINETEENTH CENTURY TO THE DAKOTA ACCESS PIPELINE CONTROVERSY

Scott Murphy[*]

The area of Indigenous land rights highlights the intersection of environmental law and human rights law. This is due to the intimate connection many Indigenous communities perceive between themselves and nature. Indigenous peoples have struggled to achieve justice through the modern legal system, due in good part to the unreceptiveness of Western legal systems to Indigenous understandings of land. Rather, these legal systems endorse Western, capitalist theories of the relationship between humans and land, wherein humans are entitled to dominate nature and exploit it for their own ends. This article examines the struggle of Indigenous peoples in pursuing justice through the United States (U.S.) legal system, focusing on early nineteenth century case law and the present-day Dakota Access Pipeline (DAPL) controversy. These two lines of case law exhibit how the U.S. legal system developed a bias against Indigenous theories of land and how this bias has persisted over time. Lockean and Kantian theories, as well as Robert Cover's concept of jurispathy, can help further explain the implications of the U.S. legal system's bias against Indigenous peoples. This article also analyses how Indigenous communities can best navigate this bias to achieve justice.

INTRODUCTION

While the Western environmental view emphasizes the separation of humans from nature and prioritizes economic efficiency,[1] Indigenous communities often perceive an intimate relationship between themselves and the land.[2] From an Indigenous perspective, environmental law and

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[1] *See* CAROLYN MERCHANT, RADICAL ECOLOGY: THE SEARCH FOR A LIVABLE WORLD (2nd ed. 2005).

[2] For a more in-depth analysis of Indigenous conceptions of nature, see Erin L. Bohensky et al., *Indigenous Environmental Values as Human Values*, 2 COGENT SOC. SCI. 1 (2016).

human rights are necessarily inseparable. The Dakota Access Pipeline (DAPL) controversy is a recent example highlighting the struggle of Indigenous peoples to obtain justice through law, showcasing how the U.S. legal system favors expansion and is insufficiently receptive to Indigenous claims for justice.[3] A case study of the DAPL controversy can help analyze how Indigenous environmental and land right claims have evolved over time.[4] The philosophies of John Locke and Immanuel Kant offer further understanding of this area of law.[5]

Part I of this article analyzes legal and political theory concerning land and government, focusing on Lockean and Kantian theories and how they relate to Indigenous understandings of land. Part II examines early U.S. case law dealing with Indigenous rights, including *Johnson v. M'Intosh,*[6] *Cherokee Nation v. Georgia,*[7] and *Worcester v. Georgia,*[8] viewed through Lockean and Kantian theories. Part III analyzes, through the lens of DAPL case law, how Indigenous environmental law has developed since those early cases. Part III also examines the extent to which present-day environmental law accommodates the Sioux's understanding of land. Robert Cover's jurispathy theory, Lockean philosophy, and Kantian philosophy are particularly useful in explaining the law's continuing bias against Indigenous environmental theory.

I. THEORETICAL APPROACHES TO LAND AND PROPERTY

A. Overview of Locke and Kant

John Locke's philosophy begins from the "state of nature" – a time in human history without politics or law.[9] For Locke, the state of nature was on one hand hypothetical, as it was part of a thought experiment that

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[3] For a detailed biography of the DAPL controversy, see *Updates & Frequently Asked Questions: The Standing Rock Sioux Tribe's Litigation on the Dakota Access Pipeline*, EARTHJUSTICE, https://earthjustice.org/features/faq-standing-rock-litigation [https://perma.cc/UHZ4-67SZ].

[4] For a broader discussion of the historical relationship between DAPL and previous Indigenous resistance to the invasion of and construction on their land, see Nick Estes, *Fighting For Our Lives: #NoDAPL in Historical Context*, THE RED NATION (Sept. 18, 2016), https://therednation.org/fighting-for-our-lives-nodapl-in-context/ [https://perma.cc/2J63-PL8A].

[5] I focus particularly on JOHN LOCKE, TWO TREATISES OF GOVERNMENT (1689); IMMANUEL KANT, *The Doctrine of Right*, *in* THE METAPHYSICS OF MORALS (1797); and IMMANUEL KANT, PERPETUAL PEACE: A PHILOSOPHICAL SKETCH (1795).

[6] Johnson v. M'Intosh, 21 U.S. (8 Wheat.) 543 (1823).

[7] Cherokee Nation v. Georgia, 30 U.S. (5 Pet.) 1, 15-17 (1831).

[8] Worcester v. Georgia, 31 U.S. (6 Pet.) 515, 543 (1832).

[9] JOHN LOCKE, TWO TREATISES OF GOVERNMENT 61, 106-12 (1689).

allowed him to develop a moral approach to major political issues. On the other hand, it was also an empirical observation because Locke described certain communities, including Native Americans, as living in the state of nature. Locke believed that a Christian's duty was to take over the "un-owned commons" in the state of nature and make productive use of the land.[10] In doing so, one's claim of land ownership was justified. According to this theory of justified acquisition, the dispossession of a person's land is justified if the person's use of the land is unproductive and there is sufficient unowned land for others to acquire.[11]

In contrast to Locke, Immanuel Kant saw property as a relationship between individuals, not between an individual and the land.[12] Kant distinguished empirical possession—the physical and literal holding of something—from intelligible or noumenal possession, a more profound process whereby an external physical item is internalized in the individual through the idea of belonging.[13] According to Kant, an individual could only make an external possession internal through the consent of others.[14]

B. Analysis

European colonialists frequently encountered Native American governments in the form of a confederation of nations bound together by an assembly of National Chiefs.[15] Land in these Indigenous communities was usually communally owned.[16] Locke described 'America'— by which he meant the 'unexplored' lands of North America, from a colonial, European perspective—as being in the state of nature in *Two Treatises of Government.*[17] He considered Native American government illegitimate because it was not state-centered, such as in Europe.[18]

James Tully, a Professor Emeritus at the University of Victoria and expert in political theory and Indigenous politics, argues that there are two

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[10] *Id.* at 106.
[11] *Id.* at 118.
[12] IMMANUEL KANT, *Doctrine of Right*, *in* METAPHYSICS OF MORALS [6:261] (1797).
[13] Id. at [6:245].
[14] Id. at [6:261].
[15] JAMES TULLY, AN APPROACH TO POLITICAL PHILOSOPHY: LOCKE IN CONTEXTS 152 (1993). As Tully notes, this is a simplification of various, elaborate forms of political organization. For a more nuanced analysis, see Anthony F. Wallace, *Political Organization and Land Tenure among the Northeastern Indians 1600-1830*, 13 SW. J. ANTHROPOLOGY 301, 301-21 (1957).
[16] Tully, *supra* note 15, 151.
[17] Locke, *supra* note 9, at 125.
[18] Tully, *supra* note 15, at 153.

main consequences of Locke's approach to the concepts of government and property.[19] First, Locke's consideration of Indigenous government as illegitimate served as justification for bypassing their self-perceived autonomy in managing their own affairs.[20] Second, appropriation of Indigenous land without consent was justified by Locke's belief that Indigenous communities unproductively made use of their land.[21] The following sections explore Locke and Kant's theories of property and government as they relate to Indigenous land claims and relevant case law.

II. EARLY U.S. CASE LAW ON INDIGENOUS RIGHTS AND LAND

Johnson v. M'Intosh, *Cherokee Nation v. Georgia,* and *Worcester v. Georgia* are all seminal cases in the development of how U.S. law conceives of Indigenous rights and land claims. While *Johnson* and *Cherokee* represent a Lockean approach, *Worcester* reflects a Kantian perspective.

A. Overview of Case Law

Johnson v. M'Intosh concerned a dispute between two non-Indigenous parties, both of whom claimed title to the same land in southern Illinois.[22] The plaintiffs inherited the land from their father, who purchased it from the Indigenous Piankeshaw Tribe, whereas the defendants bought the same land from the U.S. government.[23] In writing for the majority opinion, Justice Marshall developed the Discovery Doctrine and held that Indigenous land rights were discarded once the United States came into existence.[24] Accordingly, Indigenous peoples could not privately sell their land, making the transfer of the land from the Piankeshaw Tribe to the plaintiffs invalid.[25]

In *Cherokee Nation v. Georgia,* an Indigenous community in Georgia claimed that the state's laws, which took away the rights of Indigenous peoples with the aim of removing the Cherokee from the tribe's land, should be struck down because the laws destroyed any meaningful sense of Indigenous autonomy.[26] The Supreme Court held that because the Cherokee

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[19] *Id.* at 142.
[20] *Id.* at 151.
[21] *Id.* at 145.
[22] *Johnson*, 21 U.S. at 543.
[23] *Id.* at 543-545.
[24] *Id.* at 544-545.
[25] *See id.* at 596.
[26] *Cherokee Nation*, 30 U.S. at 1.

Nation was not a foreign nation, it could not sue a U.S. state.[27] Instead, the Court reasoned that the Cherokee Nation had a ward-type relationship with the United States in which the federal government had plenary power over Indigenous affairs.[28]

In contrast to how the Court in *Johnson* and *Cherokee Nation* dealt with Indigenous rights, the Supreme Court in *Worcester v. Georgia* took a different approach. Justice Marshall, again writing for the majority, held that the relationship between the United States and its Indigenous communities is one of nations.[29] The Court reasoned that Indigenous nations were not considered wholly independent, but were granted some sovereign status so that the U.S. federal government, rather than individual U.S. states, would engage with them.[30] Although this ruling was ignored by President Andrew Jackson[31] and the oppression of Native Americans continued, Marshall's opinion served as the basis for the development of tribal sovereignty in the twentieth century.[32]

B. Johnson *and* Cherokee Nation*: A Lockean Approach*

While Steven T. Newcomb, an Indigenous rights scholar and co-founder of the Indigenous Law Institute, argues that Justice Marshall's reasoning in *Johnson* and *Cherokee Nation* reflects Christian nationalist philosophy, Marshall's majority opinions can also be explained through Lockean theory.[33] Support for Newcomb's argument can be found in Justice Marshall's opinion in *Johnson*. He reasoned that the United States' dominion over Indigenous peoples was justified in part because, in the original establishment of relations with Native Americans, European rulers believed that the introduction of Christianity and European culture to Native Americans was ample compensation for "unlimited independence."[34]

The two main principles governing a nation's territory during the time of the *Johnson* decision were property and sovereignty.[35] Had Justice

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[27] *Id.* at 20.

[28] *Id.* at 17.

[29] *Worcester*, 31 U.S. at 519.

[30] *Id.*

[31] *Worcester v. Georgia: United States law case*, BRITANNICA, https://www.britannica.com/topic /Worcester-v-Georgia [https://perma.cc/FM93-GPC3].

[32] Daan Braveman, *Tribal Sovereignty: Them and Us*, 82 OR. L. REV. 75, 75-76 (2003).

[33] See Steven T. Newcomb, *The Evidence of Christian Nationalism in Federal Indian Law*, 20 N.Y.U. REV. L. & SOC. CHANGE 303 (1992).

[34] J*ohnson*, 21 U.S. at 573.

[35] Newcomb, *supra* note 33, at 321.

Marshall extended these principles to Indigenous nations, the United States would have been legally prohibited from profitably selling off Indigenous land—though, the president could conceivably have ignored such a prohibition.[36] Instead, the majority's refusal to recognize the property rights and sovereignty of Indigenous nations allowed the United States to continue to sell Indigenous land to private parties. This reasoning also reflects Lockean philosophy in several ways because it delegitimizes Indigenous sovereignty and property rights by emphasizing the "superiority" of Christianity and European agricultural methods. For example, it resembles the Lockean view that Christians are justified in annexing heathen lands because it is their God-given-duty.

Locke's view that European colonizers could seize Native American land because their working of the land was considered inefficient and their property rights invalid is also relevant here. In disregarding Indigenous claims to their own land, Marshall referred to the supposed "savage" nature of Native Americans and their perceived inability to self-govern.[37] He noted that principles of justice would only be applied when dealing with "civilized nations" who possessed "perfect independence."[38] Because Indigenous people were "uncivilized," they were not entitled to full sovereignty rights.[39]

Alexander Anievas, an Associate Professor of Political Science at the University of Connecticut, and Kerem Nişancıoğlu, a Lecturer in International Relations at SOAS University of London, argue that the "state of nature" theory as used in Lockean philosophy was neither an empirical observation nor an innocent thought experiment.[40] Instead, it was an imperialist invention used to justify and further the colonial exploitation of Indigenous people.[41] Anievas and Nişancıoğlu contend that excluding Indigenous peoples from the social contract due to their perceived inferiority has been critical in legitimizing their colonial oppression.[42]

There is strong evidence to corroborate this claim. The practical outcome of *Johnson* was to facilitate the continued selling of Indigenous land by the United States, and concepts such as the Discovery Doctrine

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[36] *Id.*
[37] *Johnson*, 21 U.S. at 563, 590.
[38] *Id.* at 572.
[39] *Id.*
[40] ALEXANDER ANIEVAS & KEREM NIŞANCIOĞLU, HOW THE WEST CAME TO RULE: THE GEOPOLITICAL ORIGINS OF CAPITALISM 134 (2015).
[41] *Id.*
[42] *Id.*

served to further colonialism. Similarly, Locke was personally invested in the slave trade and had roles in writing constitutions and laws for several early state governments within the United States.[43] Thus, the legal application of Locke's conception of the "state of nature" furthered his own financial interests, albeit two centuries before cases such as *Johnson.*

C. Worcester*: A Kantian Approach*

In contrast to *Johnson* and *Cherokee* reflecting Lockean reasoning, *Worcester v. Georgia* exhibits a Kantian approach. In *Perpetual Peace: A Philosophical Sketch*, Kant described the cosmopolitan right as the right of a "foreigner" not to be treated as an enemy when they arrive on another person's land."[44] Krista K. Thomason, an Associate Professor of Philosophy at Swarthmore College who specializes in Kant's moral theory, argues that Kant's cosmopolitan right is aimed at securing a vision of "perpetual peace."[45] That vision is centered around the permanent establishment of peace between people and states.[46] However, because imperialism undermines the aim of attaining this peace, there is a Kantian justification for Indigenous sovereignty and property rights.[47] This is despite Kant's view that Indigenous peoples lived in the state of nature and should ideally leave and join "civilized society."[48] Thus, while intelligible possession is (1) ordinarily persevered for those in civil society; and (2) normally attained through others' consent, a history of imperialism grants Indigenous peoples sovereignty and necessitates that their property rights be respected in the pursuit of perpetual peace.

A similar approach to Indigenous rights was presented by the majority opinion in *Worcester,* where Justice Marshall noted several treaties that committed the United States to engaging in peaceful dialogue with Indigenous communities.[49] He also argued that Indigenous nations have the right to be respected as somewhat sovereign entities. On this reading, the United States must recognize the legitimacy of Indigenous property and sovereignty because not doing so would facilitate continued colonial violence against Indigenous communities and make the attainment of

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[43] Tully, *supra* note 15, at 140.

[44] IMMANUEL KANT, PERPETUAL PEACE: A PHILOSOPHICAL SKETCH 11 (1795).

[45] Krista K. Thomason, *A Kantian Argument for Sovereignty Rights of Indigenous Peoples*, 6 PUB. REASON 21 (2016).

[46] Kant, *supra* note 44.

[47] *Id.* at 26.

[48] *Id.* at 24.

[49] *Worcester*, 31 U.S. at 519.

perpetual peace in the United States impossible. [50] Therefore, for perpetual peace to be obtained, Indigenous sovereignty and property rights must be respected.

II. DAPL CASE LAW: PRESENT DAY INDIGENOUS ENVIRONMENTAL LAW

A. Overview

The Dakota Access Pipeline runs from North Dakota to Illinois.[51] The Standing Rock Sioux Tribe, an Indigenous community inhabiting the Standing Rock Reservation, claims that the presence of the pipeline under Lake Oahe and the Missouri River poses a threat to their water source, agriculture, and religious practices.[52] In a series of ongoing cases that began in July 2016, the Sioux have sought to stop construction of the pipeline—and, later, to shut it down.[53]

First, the Sioux argued that the pipeline's presence threatened them spiritually and potentially endangered their water supply.[54] In *Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers*, the D.C. District Court refused emergency relief because the Sioux could not identify the specific harm they would suffer if the pipeline were completed.[55] Neither the possibility of harm nor harm to "abstract" concepts were sufficient.[56] Second, the court rejected the Sioux's claim that the pipeline's presence would interfere with a religious ceremony due to a time-constraint technicality.[57] Finally, the Sioux claimed that the Army Corps of Engineers' ("Corps") environmental review, mandated under the National Environmental Policy Act (NEPA), was flawed because it ignored key findings and Indigenous theories of environmental justice.[58]

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[50] *Id.*

[51] EARTHJUSTICE, *supra* note 3.

[52] *Id.*

[53] *Id.*

[54] Compl. Decl. and Inj. Relief at 20-21, Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (*Standing Rock I*), 205 F. Supp. 3d. 4 (D.D.C. 2016) (No. 16-1534), 2016 WL 4033936.

[55] *Id.* 26-27.

[56] *Id.*

[57] Int.-Pl. Cheyenne River Sioux Tribe's Mot. Prelim. Inj. at 1-4, Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (*Standing Rock II*), 239 F. Supp. 3d. 77 (D.D.C. 2017) (No. 16-1534), 2017 WL 1454128.

[58] Pl. Standing Rock Sioux Tribe's Mem. Supp. Mot. Partial Summ. J. at 14-18, Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (*Standing Rock III*), 255 F. Supp. 3d 101 (D.D.C. 2017) (No. 16-1534), 2017 WL 1454134.

While the majority did not focus on the Indigenous environmental justice argument, they held that the environmental review carried about by the defendant was inadequate under NEPA.[59] Justice Boasberg ordered the Corps to conduct a more comprehensive environmental analysis of the possible consequences resulting from the pipeline's construction.[60] In March 2020, the same court struck down the defendant's pipeline permit, noting that the Corps failed to consider important consequences, such as the chance of the pipeline's leak-detection system failing and the inaccuracy of the worst-case scenario spill estimate.[61] The Court again ordered the defendant to conduct a full environmental review.[62] It has yet to be definitively settled whether the pipeline should be shut down while the Corps conducts a more comprehensive environmental review.

B. Analysis

In explaining how the common law develops biases, Robert Cover, a former Yale Law School professor who wrote widely about the relationship between law and violence, developed "jurisgenerative" and "jurispathic" principles of law.[63] "Jurisgenerative" refers to how courts create legal principle, while "jurispathic" refers to how courts kill particular understandings of law over time.[64] Danielle Delaney, a Ph.D. candidate researching Indigenous rights law at the University of Wisconsin-Madison, argues that U.S. common law has developed a bias against Indigenous understandings of land through a process of jurispathy.[65] The courts consistently rejected the Sioux's arguments based on Indigenous understandings of land; for example, that harm to their water equates to harm to them. Due to the unreceptiveness of the judiciary to this reasoning in pre-2020 case law, the Sioux's procedural environmental claims were more successful than those based on Indigenous rights.[66]

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[59] *Id.*

[60] *Id.*

[61] Standing Rock Sioux Tribe v. U.S. Army Corps of Engineers (*Standing Rock IV*), 440 F. Supp. 3d 1 (D.D.C. 2020); *see also Standing Rock Sioux Tribe Prevails as Federal Judge Strikes Down DAPL Permits*, EARTHJUSTICE (March 25, 2020), https://earthjustice.org/news/press/2020/standing-rock-sioux-tribe-prevails-as-federal-judge-strikes-down-dapl-permits [https://perma.cc/9UF E-DQPJ].

[62] *Standing Rock IV*, 440 F. Supp. 3d at 2

[63] *See* Robert Cover, '*The Supreme Court, 1982 Term - Foreword: Nomos and Narrative,*' 97 HARV. L. REV. 4 (1983), *reprinted in* YALE L. SCH., *Faculty Scholarship Series*, Paper 2705 (1983).

[64] *Id.* at 40.

[65] Danielle Delaney, *Under Coyote's Mask: Environmental Law, Indigenous Identity and #NoDAPL*, 24 MICH. J. RACE & L. 299, 322 (2019).

[66] *Id.* at 321.

Building on Delaney's argument, some observations can be made about the March 2020 judgement. The Sioux's successful argument was a procedural claim focusing on the environmental review, rather than one based on Indigenous environmental theory.[67] This appears to validate Delaney's expectation that the Sioux are most successful when they pursue a purely procedural approach. While Delaney seems correct in arguing that U.S. environmental law has a bias against Indigenous understandings of land, it is necessary to examine whether the problem lies with statutes or common law.

Some argue that judges are restricted in accepting arguments based on Indigenous environmental theory. Using Cover's jurispathy approach, it appears that the common law has developed a hostility towards Indigenous understandings of nature that limits the interpretations available to judges. This legal hostility can be traced back to Justice Marshall's complete repudiation of Indigenous understandings of land in *Johnson* and *Cherokee Nation.* While this legal aversion has mellowed somewhat since these early cases, the continued unreceptiveness to Indigenous theories of justice in the DAPL case law shows how this bias persists. Due to the common law's lengthy history of hostility to Indigenous theory, judges may not believe that they could legitimately reverse this trend through a jurisgenerative embrace of Indigenous environmental theory in the common law. Thus, to facilitate Indigenous interpretations of environmental law, it might be necessary to introduce legislation specifically allowing such interpretations. Alternatively, it is conceivable that a trusteeship model of protection could facilitate the legal embrace of Indigenous theories of environmental justice.[68] Such a situation would allow Indigenous communities to argue on behalf of nature, rather than arguing that harming nature is the same as harming themselves.

C. Lockean and Kantian Approaches

A Lockean approach would likely support the pipeline's completion on the grounds that the transporting of fossil fuels is an efficient use of land. Following the logic of *Johnson* and *Cherokee Nation,* the Sioux's understanding of their relationship with nature should be disregarded on behalf of their "uncivilized" nature and "unproductive" use of the land. In contrast, a Kantian approach would facilitate the legal recognition of Indigenous understandings of land. The encroachment of the pipeline on the

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[67] *Standing Rock IV*, 440 F. Supp. 3d at 2

[68] Such a model could follow the New Zealand approach. *See, e.g.,* Abigail Hutchison, *The Whanganui River as a Legal Person*, 39 ALT. L. J. 179 (2014).

land and resources of the Sioux without their consent could arguably be considered a form of neo-imperialism, especially considering the uncertainty over the pipeline's safety.[69] Consequently, in pursuit of perpetual peace, the Sioux should have their right to the land and their Indigenous understanding of nature reflected in legal principle. Justice Marshall's proposition in *Worcester* to respect the sovereignty of Indigenous communities could arguably be extended here to necessitate the recognition of theories of Indigenous environmentalism in law.

CONCLUSION

This article has argued that *Johnson v. M'Intosh* and *Cherokee Nation v. Georgia* reflect a Lockean approach to Indigenous rights and environmental law. Justice Marshall's Discovery Doctrine, reinforcing the Lockean concept of the "state of nature," served to justify colonialism and the abuse of Indigenous communities. In contrast, Marshall's ruling in *Worcester v. Georgia* portrays a Kantian approach, whereby the recognition of Indigenous property and sovereignty is necessary in the pursuit of perpetual peace.

In analyzing the DAPL case law, this article has argued that a legal bias persists against Indigenous understandings of land. Because the common law is generally unreceptive to Indigenous theory, procedural mechanisms such as mandatory environmental reviews have been best placed to further the Sioux's claims. This common law bias can be explained through Cover's concept of jurispathy, through which judges close off particular interpretations of law over time. While a Lockean approach would appear to favor the pipeline's continued presence, a Kantian approach would justify legal recognition of Indigenous understandings of land. This might be best carried out through statutes that explicitly facilitate these interpretations or a trusteeship model whereby Indigenous communities could argue on nature's behalf.

Few areas of law exhibit the intersection between environmentalism and human rights more than Indigenous law. While Indigenous communities often emphasize the intimate connection they have with nature, the Western environmental view sees land primarily as an economic resource for

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[69] *See, e.g.*, Kyle Powys Whyte, *Why the Native American Pipeline Resistance in North Dakota is About Climate Justice,* THE CONVERSATION (Sept. 16, 2016), https://theconversation.com/why-the-native-american-pipeline-resistance-in-north-dakota-is-about-climate-justice-64714 [https://perma.cc/N443-SA7B]; Kyle Powys Whyte, *The Dakota Access Pipeline, Environmental Injustice, and U.S. Colonialism*, 19.1 RED INK 154 (2017).

humans to exploit. This article has analyzed two main sets of case law: early, seminal cases dealing with Indigenous land issues and the ongoing DAPL controversy. Studying these cases, and exploring Lockean and Kantian theories relating to land, shows how Indigenous environmental law in the United States has developed over time.

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