LEAD ARTICLE

"NO ORDINARY LAWSUIT": CLIMATE CHANGE, DUE PROCESS, AND THE PUBLIC TRUST DOCTRINE

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On November 10, 2016, just two days after the election of President Donald Trump, the federal district court in Oregon handed down Juliana v. United States. *This remarkable decision refused to dismiss a lawsuit brought by youth plaintiffs who claimed that the federal government's fossil fuel policies over the years, which have produced an atmosphere with dangerous levels of greenhouse gases (GHGs), violated the federal public trust doctrine (PTD) and their federal constitutional rights to due process and equal protection. The court found a constitutional right to a stable climate system, determining that the PTD was an implicit part of due process and enforceable through the Constitution's due process clause. At trial, if the youth plaintiffs are able to prove that for decades the government willfully disregarded information about the potential catastrophic effects of GHG pollution, or abdicated its public trust duties, the decision could be transformative in global efforts to shift to an energy policy that does not threaten young people and future generations.*

This Article examines Juliana, *its context as part of a worldwide campaign of "atmospheric trust" litigation, its path-breaking reasoning, and its implications in the United States and abroad. The case has been described as "the case of the century" and, because of the harm it aims to address and the*

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fundamental rights approach endorsed by the court, it just may be that. Pending the forthcoming trial and almost certain appeals, we think the case is, as the trial judge accurately recognized, "no ordinary lawsuit."

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"I have no doubt that the right to a climate system capable of sustaining human life is fundamental to a free and ordered society."
—Judge Ann Aiken[1]

INTRODUCTION

With no little irony, as humanity attempts to reverse course before plunging over a climate cliff, the American public elected a president apparently bent on accelerating fossil fuel production. The year 2016 closed as the hottest year on record.[2] Heated ocean waters threaten vast marine ecosystems worldwide.[3] The Arctic sea ice hit its lowest recorded level.[4] Scientists have warned that the massive West Antarctic ice sheet may now be in a process of "unstoppable" disintegration that could ultimately cause ten feet of sea level rise, enough to inundate coastal cities worldwide.[5] The unprecedented urgency of greenhouse

1. Juliana v. United States, 217 F. Supp. 3d 1224, 1250 (D. Or. 2016).

2. *NASA, NOAA Data Show 2016 Warmest Year on Record Globally*, NASA (Jan 18, 2017), https://www.nasa.gov/press-release/nasa-noaa-data-show-2016-warmest-year-on-record-globally.

3. *See* LuAnn Dahlman, *Climate Change: Ocean Heat Content*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (July 14, 2015), https://www.climate.gov/news-features/understanding-climate/climate-change-ocean-heat-content (noting that warming ocean waters threaten both human and marine life).

4. *See* Phil Plait, *What the* Heck *Is Going on at the North Pole?*, SLATE: BAD ASTRONOMY (Nov. 21, 2016, 8:45 AM), http://www.slate.com/blogs/bad_astronomy/2016/11/21/arctic_sea_ice_is_declining_when_it_should_be_growing.html (describing the fluctuating levels of Artic sea ice but noting that the 2016 maximum ice extent was the lowest maximum extent on record).

5. *See* Brenda Ekwurzel, *"Unstoppable" Destabilization of West Antarctic Ice Sheet: Threshold May Have Been Crossed*, NAT'L GEOGRAPHIC: VOICES (Nov. 3, 2016), http://voices.nationalgeographic.org/2016/11/03/unstoppable-destabilization-of-west-antarctic-ice-sheet-threshold-may-have-been-crossed; Douglas Fox, *The Larsen C Ice Shelf Collapse Is Just the Beginning—Antarctica Is Melting*, NAT'L GEOGRAPHIC (July 12, 2017), http://www.nationalgeographic.com/magazine/2017/07/antarctica-sea-level-rise-climate-change (reporting that a "Delaware-size ice sheet" recently broke away from the Larsen C Ice Shelf in Antarctica, likely the result of increased global temperatures); Justin Gillis, *Miles of Ice Collapsing into the Sea*, N.Y. TIMES (May 10, 2017),

gas emission reduction arises out of nature's "tipping points"—thresholds that can trigger dangerous feedback processes, which would unleash irreversible, "runaway" heating capable of destroying the balance of the planet's climate system.[6]

In what scientists warn is a last opportunity to avert such climate tipping points, the world must rapidly restrict fossil fuel production and switch to safe, renewable energy.[7] Instead, President Trump, who claimed that climate change was a hoax perpetrated by the Chinese,[8] intends to spur production of $50 trillion worth of shale, oil, coal, and natural gas.[9] He ordered agencies to resurrect the Keystone and Dakota Access Pipelines.[10] He aims to open public land to increased oil and gas drilling and coal production,[11] rescind the Obama Administration's

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https://www.nytimes.com/interactive/2017/05/18/climate/antarctica-ice-melt-climate-change.html (warning that, in a worst-case scenario, millions of coastal dwellers would have to flee inland if the "disintegration of Antarctica" continues).

6. *See generally* FRED PEARCE, WITH SPEED AND VIOLENCE: WHY SCIENTISTS FEAR TIPPING POINTS IN CLIMATE CHANGE xxiv–v (2007) (describing "unstoppable planetary forces" beyond tipping points and the end of climatic stability).

7. *See, e.g.*, JAMES HANSEN ET AL., THE CASE FOR YOUNG PEOPLE AND NATURE: A PATH TO A HEALTHY, NATURAL, PROSPEROUS FUTURE 1–2 (2011), http://www.columbia.edu/~jeh1/mailings/2011/20110505_CaseForYoungPeople.pdf (advocating for a transition to clean energy to avoid the consequences of continued reliance on fossil fuels).

8. *See* Edward Wong, *Trump Has Called Climate Change a Chinese Hoax. Beijing Says It Is Anything But.*, N.Y. TIMES (Nov. 18, 2016), http://www.nytimes.com/2016/11/19/world/asia/china-trump-climate-change.html (noting that President Trump tweeted that climate change was a "hoax" created by China to secure more favorable trade endeavors).

9. *See* Michael Bastasch, *'Untapped Energy:' Trump Promises a $50 Trillion Economic Stimulus*, DAILY CALLER (Sept. 23, 2016, 9:59 AM), http://dailycaller.com/2016/09/23/untapped-energy-trump-promises-a-50-trillion-economic-stimulus (highlighting then-candidate Donald Trump's plan to open federal lands to energy production).

10. *See* Steven Mufson & Juliet Eilperin, *Trump Seeks to Revive Dakota Access, Keystone XL Oil Pipelines*, WASH. POST (Jan. 24, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/01/24/trump-gives-green-light-to-dakota-access-keystone-xl-oil-pipelines; *see also Zinke Signs Secretarial Order to Streamline Process for Federal Onshore Oil and Gas Leasing Permits*, U.S. DEP'T OF THE INTERIOR (July 6, 2017), https://www.doi.gov/pressreleases/zinke-signs-secretarial-order-streamline-process-federal-onshore-oil-and-gas-leasing (quoting Secretary Zinke as stating that increasing lease sales for oil and gas production "is just good government and will further support the President's goal of American energy dominance").

11. *See* David Roberts & Brad Plumer, *Most People Are Wildly Underestimating What Trump's Win Will Mean for the Environment*, VOX (Nov. 14, 2016, 9:21 AM), http://www.vox.com/science-and-health/2016/11/14/13582562/trump-gop-climate-environmental-policy (commenting that the GOP previously tried to push similar legislation through Congress and attempted to decrease funding for the EPA).

Clean Power Plan,[12] and resume oil and gas leasing on the Arctic and mid-Atlantic continental shelves.[13] Trump also announced American withdrawal from the Paris climate agreement.[14] He selected the CEO of ExxonMobil, Rex Tillerson, as Secretary of State and a known climate-change denier, Scott Pruitt, to head the EPA.[15]

The cruel circumstance for young people is that actions taken during President Trump's time in office may lock in a future of grave climate disruption within their projected lifetimes. The scientific community has clearly warned that continued greenhouse gas (GHG) emissions threaten irreversible atmospheric calamity. As author Fred Pearce stated, "Humanity faces a genuinely new situation . . . a crisis for the entire life-support system of our civilization and our species."[16]

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12. *See* Chelsea Harvey, *Trump Has Vowed to Kill the Clean Power Plan. Here's How He Might—and Might Not—Succeed*, WASH. POST (Nov. 11, 2016), https://www.washingtonpost.com/news/energy-environment/wp/2016/11/11/trump-has-vowed-to-kill-the-clean-power-plan-heres-how-he-might-and-might-not-succeed (noting that the proposed rule, which would cut carbon emissions from power plants, is being challenged in the U.S. Court of Appeals for the District of Columbia Circuit).

13. *See* Juliet Eilperin, *Trump Signs Executive Order to Expand Drilling off America's Coasts: "We're Opening It Up.,"* WASH. POST (Apr. 28, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/04/28/trump-signs-executive-order-to-expand-offshore-drilling-and-analyze-marine-sanctuaries-oil-and-gas-potential (reporting that an executive order signed by President Trump aimed to make federal waters open to drilling just months after President Obama withdrew such areas from possible development).

14. *See* Michael D. Shear, *Trump Will Withdraw U.S. from Paris Climate Agreement*, N.Y. TIMES (June 1, 2017), https://www.nytimes.com/2017/06/01/climate/trump-paris-climate-agreement.html. One hundred ninety-five countries signed the 2015 Paris Agreement at the United Nations Conference on Climate Change. *Id.*

15. *See* Tom DiChristopher, *EPA Chief Scott Pruitt Says Carbon Dioxide Is Not a Primary Contributor to Global Warming*, CNBC (Mar. 9, 2017, 11:19 AM), http://www.cnbc.com/2017/03/09/epa-chief-scott-pruitt.html (stating that Pruitt "does not believe carbon dioxide is a primary contributor to global warming," which is a direct contradiction of the EPA website, because "measuring with precision human activity on the climate is something very challenging"); John Nichols, *For Scott Pruitt's EPA, Climate Change Denial Is Mission Critical*, NATION (Aug. 30, 2017), https://www.thenation.com/article/for-scott-pruitts-epa-climate-change-denial-is-mission-critical (charging that Pruitt is characterizing events such as Hurricane Harvey, the 2017 category four storm that killed more than fifty people and caused estimated damages of $80–200 million, "to make them fit within the narrow confines of his climate-science denial").

16. *See* PEARCE, *supra* note 6, at 239; *see also* Brief for Dr. James Hansen as Amicus Curiae at 5, Alec L. v. Jackson, 863 F. Supp. 2d 11 (D.D.C. 2012) (No. 4:11-cv-02203 EMC), ECF No. 108 [hereinafter Hansen, Amicus Curiae Brief] (arguing that maintaining a stable climate requires "rapid reduction of fossil fuel [carbon dioxide]

Sea levels could rise and inundate coastal cities around the globe, creating a fundamentally "different planet"—one not hospitable to human survival.[17] Dr. James Hansen, formerly the nation's chief climate scientist at NASA, has warned, "[F]ailure to act with all deliberate speed . . . functionally becomes a decision to eliminate the option of preserving a habitable climate system."[18]

Into this bleak and dangerous picture, groups of youth stepped forward to defend the atmosphere from dangerous GHG emissions. In cases filed throughout the world over the past few years,[19] they have asked courts to force a government response to the climate crisis and reduce GHG emissions.[20] In late 2016, only two days after the election

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emissions"); Al Gore, *Moving Beyond Kyoto*, N.Y. TIMES (July 1, 2007), http://www.nytimes.com/2007/07/01/opinion/01gore.html ("This is a moral issue, one that affects the survival of human civilization. . . . Put simply, it is wrong to destroy the habitability of our planet and ruin the prospects of every generation that follows ours."). For a graphic description of a worst-case climate scenario, see David Wallace-Wells, *The Uninhabitable Earth*, N.Y. MAG. (July 9, 2017), http://nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans.html. In response to criticism that the article was alarmist, the magazine published an annotated version with supporting interviews and facts. *See* David Wallace-Wells, *The Uninhabitable Earth, Annotated Edition*, N.Y. MAG. (July 14, 2017), http://nymag.com/daily/intelligencer/2017/07/climate-change-earth-too-hot-for-humans-annotated.html. For commentary addressing the criticism, see Joe Romm, *We Aren't Doomed by Climate Change. Right Now We Are Choosing to Be Doomed*, THINK PROGRESS (July 11, 2017, 7:57 PM), https://thinkprogress.org/climate-change-doomsday-scenario-80d28affef2e.

17. *See* HANSEN ET AL., *supra* note 7, at 10 ("We cannot burn all of the fossil fuels without producing a different planet, with changes occurring with a rapidity that will make Earth far less hospitable for young people, future generations, and most other species."); *see also* Joby Warrick & Chris Mooney, *Effects of Climate Change "Irreversible," U.N. Panel Warns in Report*, WASH. POST (Nov. 2, 2014), https://www.washingtonpost.com/national/health-science/effects-of-climate-change-irreversible-un-panel-warns-in-report/2014/11/01/2d49aeec-6142-11e4-8b9e-2ccdac31a031_story.html (noting that a United Nation's panel predicted extreme weather, rising sea levels, and melting polar ice due to soaring levels of [carbon dioxide] and other gases).

18. Hansen, Amicus Curiae Brief, *supra* note 16, at 7.

19. *See Global Legal Actions*, OUR CHILDREN'S TRUST https://www.ourchildrenstrust.org/global-legal-actions (last visited Oct. 23, 2017) (listing countries in which Our Children's Trust has partners filing legal actions to hold governments responsible for climate change).

20. *See, e.g.*, Arthur Neslen, *Dutch Government Ordered to Cut Carbon Emissions in Landmark Ruling*, GUARDIAN (June 24, 2015, 6:04 PM), https://www.theguardian.com/environment/2015/jun/24/dutch-government-ordered-cut-carbon-emissions-landmark-ruling (referencing a 2015 case in the

of President Trump, the children gained a remarkable victory in *Juliana v. United States*[21] when the U.S. District Court for the District of Oregon issued a landmark opinion underscoring the validity of their claims, denying the government's motion to dismiss and allowing the case to go forward to trial.[22]

As the court recognized at the outset of its opinion, this was "no ordinary lawsuit."[23] For the past several decades, environmental lawsuits have relied largely on statutes or regulations. *Juliana* is instead a human rights case, challenging the government's entire fossil fuel policy based on asserted constitutional rights to inherit a stable climate system.[24] At a time of unprecedented climatic danger, the children pursued a litigation strategy born from matching the law with the existential threat they face.

The *Juliana* plaintiffs charged that the government's fossil fuel policies violated their fundamental constitutional rights to life, liberty, and property, breached the government's constitutional public trust obligations, violated due process guarantees, and discriminated against them in violation of equal protection principles.[25] The court aptly recognized the case as a "civil rights action"[26]—an action "of a different order than the typical environmental case"[27]—because it alleged that federal actions "have so profoundly damaged our home planet that they threaten plaintiffs' fundamental constitutional rights to life and liberty."[28]

Judge Ann Aiken's decision broke new legal ground, deciding that the children have a fundamental right to a climate system capable of sustaining human life.[29] Judge Aiken concluded that the right to a climate system capable of sustaining human life is protected against

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Netherlands, which held that the Dutch government was obligated to reduce carbon emissions under international pacts).

21. 217 F. Supp. 3d 1224 (D. Or. 2016).

22. *See id.* at 1263. At the time of publication, this case was subject to a temporary stay issued by the Ninth Circuit Court of Appeals pending briefing on issues surrounding a petition for writ of mandamus filed by the government defendants. *See* Order Granting Temporary Stay, United States v. U.S. Dist. Court for the Dist. of Or., No. 17-71692, 2017 WL 2537433 (June 9, 2017); *see also infra* note 144 and accompanying text.

23. *Juliana*, 217 F. Supp. 3d at 1234.

24. *Id.* at 1234, 1261.

25. *Id.* at 1239–40, 1253.

26. *Id.* at 1233.

27. *Id.* at 1261.

28. *Id.*

29. *Id.* at 1250.

federal government interference by both the due process and equal protection clauses of the U.S. Constitution[30] as well as the public trust doctrine, which she found implicit in the due process clause and, indeed, implicit in sovereignty.[31] The trial will focus on the issue of whether the government actually breached these constitutional rights.[32]

At a time when the political system seems prepared to shun responsible climate action, the lawsuit may be the only legal mechanism that can "trump" the incumbent administration. If upheld on appeal, the case could be a legal game-changer for climate crisis and, perhaps, for environmental law as a whole.

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30. U.S. CONST. amend. V ("[N]or [shall any person] be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation"). Due process is also applicable to the states through the Fourteenth Amendment. U.S. CONST. amend. XIV, § 1. While discussing the constitutional claims, Judge Aiken referred to them collectively as "due process claims." *Juliana*, 217 F. Supp. 3d at 1248. Her ruling, which upheld the constitutional claims of plaintiffs, seemingly encompasses the various grounds of due process, equal protection, and unenumerated rights reserved by the Ninth Amendment to the Constitution, which were all pled separately by plaintiffs. *See* Complaint for Declaratory and Injunctive Relief at 92–93, *Juliana*, 217 F. Supp. 3d 1224 (D. Or. 2016) (No. 6:15-cv-01517-TC), 2015 WL 4747094, *92–93 [hereinafter *Juliana* Complaint]. One exception, however, concerned the equal protection argument asserted by the plaintiffs that future generations constituted a suspect class. To that claim, Judge Aiken responded, "The court should decline to create a new separate suspect class based on posterity. Nonetheless, the complaint does allege discrimination against a class of younger individuals with respect to a fundamental right protected by substantive due process." *Juliana*, 217 F. Supp. 3d at 1271 n.8. In subsequent Findings and Recommendations issued by Magistrate Judge Coffin recommending denial of the motion to certify an appeal, Magistrate Coffin called attention to the equal protection argument by noting,

> The plaintiffs contend that the federal defendants are denying their basic right to a habitable climate system so that the current generation can reap the economic benefits from energy production levels which exacerbate global warming while transferring the most harmful consequences of these actions to their generation and future generations.

Findings & Recommendation at 10, *Juliana*, 217 F. Supp. 3d 1224 (D. Or. 2016) (No. 6:15-cv-1517-TC), ECF No. 146 [hereinafter *Juliana* Findings II].

31. *See Juliana*, 217 F. Supp. 3d at 1252, 1260–61; *see also* Robinson Twp. v. Commonwealth, 83 A.3d 901, 956 (Pa. 2013) (plurality opinion) ("The trust relationship does not contemplate a settlor placing blind faith in the uncontrolled discretion of a trustee; the settlor is entitled to maintain some control and flexibility, exercised by granting the trustee considerable discretion to accomplish the purposes of the trust."); *infra* notes 224–34, 254–66 (describing the PTD as a sovereign obligation, enforceable as a fundamental constitutional right under the Due Process Clause).

32. *See infra* Section VI.A.

This Article considers *Juliana* and its implications. Part I briefly describes the current climate crisis and the fossil-fuel production policies that drive it. Part II explains the wave of atmospheric trust litigation of which this lawsuit is a part. Part III proceeds to examine Judge Aiken's preliminary rulings on procedural issues that required resolution before moving to the substantive claims. These issues, involving the political question doctrine and the young plaintiffs' standing, concern the proper role of courts in the climate crisis. Part IV explores the court's due process ruling and the concept of fundamental rights in American constitutional law, describing the *Juliana* decision as a logical extension of existing jurisprudence.

Part V proceeds to consider the public trust doctrine (PTD), which Judge Aiken decided was implicit in due process, and contends that the court's application of this ancient principle to the federal government was both well-founded and consistent with case law. Part VI explains the road ahead in *Juliana* by anticipating the trial phase of the litigation. Part VII examines the international march of atmospheric trust litigation, of which the *Juliana* case is a part. Several international cases have recognized fundamental environmental rights embedded in the PTD and expressed in the "right to life" provisions of national constitutions.[33] The Article concludes that *Juliana* could—and should—signal a significant change to environmental law at the outset of an era in which the federal government seems quite prepared to wage a potentially deadly gamble with the future of young people.

I. THE CLIMATE CRISIS[34]

Despite climate denial in the halls of Congress,[35] there is little or no scientific question that the world has entered an era of climate instability, if not imminent catastrophe.[36] The planet recently

33. *See infra* Section VII.B.

34. Parts of this Section are adapted from Mary Wood, Charles W. Woodward, IV & Michael C. Blumm, *Earth on the Docket: Why Obama Can't Ignore This Climate Lawsuit by America's Youth*, CONVERSATION (Dec. 15, 2016, 10:20 PM), http://theconversation.com/earth-on-the-docket-why-obama-cant-ignore-this-climate-lawsuit-by-americas-youth-69193. Some of the supporting footnote material is drawn from prior works of the authors in the area of climate litigation.

35. *See, e.g.*, Sean Reilly, *Freedom Caucus Would Scrap More than 200 Obama Rules*, E&E NEWS (Dec. 15, 2016), http://www.eenews.net/eenewspm/2016/12/15/stories/1060047290 (discussing a report by some House Republicans calling for revocation of numerous climate rules and green energy initiatives).

36. *See, e.g.*, Paul Brown, *Climate Warnings Masked by Propaganda*, CLIMATE NEWS NETWORK (Sept. 30, 2016), http://climatenewsnetwork.net/climate-warnings-

surpassed 400 parts per million (ppm) of carbon dioxide (CO_2) in the atmosphere, "never to return below it in our lifetimes."[37] Fifteen of the sixteen hottest years on record have occurred since 2001.[38]

While the planet has heated roughly 2.4 degrees Fahrenheit since the Industrial Revolution,[39] warming at the poles is more extreme, with winter month temperatures near the North Pole at times soaring between 36 to 50 degrees Fahrenheit above average.[40] Ocean warming is melting ice masses across the Arctic, Antarctica, and Greenland, setting record lows in ice measurements.[41] Warmer water temperatures combined with planetary ice melt cause sea levels to rise.[42] In a recent study, Dr. James Hansen, the former chief climate scientist at NASA, observed that continued heating will make it "impossible to avoid

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propaganda (noting that Sir Robert Watson, former chairman of the Intergovernmental Panel on Climate Change, and other scientists believe that many people have "misunderstood the imminent dangers of climate change").

37. Brian Kahn, *Earth's CO_2 Passes the 400 PPM Threshold—Maybe Permanently*, SCI. AM. (Sept. 27, 2016), https://www.scientificamerican.com/article/earth-s-co2-passes-the-400-ppm-threshold-maybe-permanently.

38. *See* NAT'L CTRS. FOR ENVTL. INFO., STATE OF THE CLIMATE: GLOBAL CLIMATE REPORT FOR ANNUAL 2015 (2016), https://www.ncdc.noaa.gov/sotc/global/201513 (reporting that 1998 was the outlying year).

39. *See* Patrick Lynch, *2016 Climate Trends Continue to Break Records*, NASA (July 18, 2016), https://climate.nasa.gov/news/2465/2016-climate-trends-continue-to-break-records (recognizing that the global warming trend is driven by the higher concentrations of GHGs, including CO_2, in the atmosphere).

40. *See* Andrew Freedman, *North Pole to Warm to near Melting Point This Week: 50 Degrees Above Normal*, MASHABLE (Dec. 20, 2016), http://mashable.com/2016/12/20/north-pole-to-warm-to-near-melting-point-this-week; Chris Mooney & Jason Samenow, *The North Pole Is an Insane 36 Degrees Warmer than Normal as Winter Descends*, WASH. POST (Nov. 17, 2016), https://www.washingtonpost.com/news/energy-environment/wp/2016/11/17/the-north-pole-is-an-insane-36-degrees-warmer-than-normal-as-winter-descends.

41. *See* Plait, *supra* note 4 (reporting on the historically low ice levels in at the North Pole); *see also* Curt Mills, *Troubling Signs in Antarctic and Arctic Sea Levels*, U.S. NEWS & WORLD REP. (Nov. 21, 2016, 11:07 AM), http://www.usnews.com/news/world/articles/2016-11-21/antarctic-and-arctic-sea-ice-levels-at-record-lows (noting that record low sea ice levels in "[t]he Antarctic is of particular concern because for years ice levels there were actually expanding, even in the face of global climate change").

42. *See* John Abraham, *Global Warming Is Melting the Greenland Ice Sheet, Fast*, GUARDIAN (Aug. 25, 2016, 6:00 AM), https://www.theguardian.com/environment/climate-consensus-97-per-cent/2016/aug/25/global-warming-is-melting-the-greenland-ice-sheet-fast (reporting that researchers believe the Greenland Ice Sheet is losing the equivalent of 110 million Olympic-sized swimming pools of water every year); Christopher Joyce, *Antarctica's Ice Sheets Are Melting Faster—And from Beneath*, NPR (Oct. 25, 216, 11:01 AM), http://www.npr.org/sections/thetwo-way/2016/10/25/499206005/antarcticas-ice-sheets-are-melting-faster-and-from-beneath (explaining that Antarctic ice shelves are melting at rates faster than previously thought).

large-scale ice sheet disintegration with sea level rise of at least several meters."[43] Such sea level rise would leave most coastal cities uninhabitable.[44] Dr. Hansen thought that the cost to society of functionally losing all coastal cities was "practically incalculable."[45]

Carbon emissions now devastate marine ecosystems. The oceans have absorbed more than 90% of the excess heat energy generated by fossil fuel consumption, causing massive coral reef bleaching and death, as well as depleted oxygen levels in the ocean.[46] Marine absorption of

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43. James Hansen et al., *Ice Melt, Sea Level Rise and Superstorms: Evidence from Paleoclimate Data, Climate Modeling, and Modern Observations that 2°C Global Warming Could Be Dangerous*, 16 ATMOSPHERIC CHEMISTRY & PHYSICS 3761, 3762 (2016) [hereinafter Hansen et al., *Sea Level Rise*], https://www.atmos-chem-phys.net/16/3761/2016/acp-16-3761-2016.pdf.

44. *See* Oliver Milman, *Climate Guru James Hansen Warns of Much Worse than Expected Sea Level Rise*, GUARDIAN (Mar. 22, 2016, 12:01 AM), https://www.theguardian.com/science/2016/mar/22/sea-level-rise-james-hansen-climate-change-scientist (reporting that "[t]he current rate of global warming could raise sea levels by 'several meters' over the coming century").

45. Hansen et al., *Sea Level Rise*, *supra* note 43, at 3762; *see* R. Henry Weaver & Douglas A. Kysar, *Courting Disaster: Climate Change and the Adjudication of Catastrophe*, (manuscript at 4), https://ssrn.com/abstract=2965084 ("Indeed, climate change may routinize catastrophe itself.").

46. *See* Michelle Innis, *Great Barrier Reef Hit by Worst Coral Die-Off on Record, Scientists Say*, N.Y. TIMES (Nov. 29, 2016), http://www.nytimes.com/2016/11/29/world/australia/great-barrier-reef-coral-bleaching.html (reporting that two-thirds of the Great Barrier Reef's northern shallow-water coral died—the worst die-off recorded); *Latest Ocean Warming Review Reveals Extent of Impacts on Nature and Humans*, INT'L UNION FOR CONSERVATION NATURE (Sept. 5, 2016), https://www.iucn.org/news/latest-ocean-warming-review-reveals-extent-impacts-nature-and-humans (explaining that 93% of the heat from human-induced warming has been absorbed by oceans); Karin Limburg, *The Oceans are Suffocating: Climate Change Is Causing Low Oxygen Levels*, SALON (Nov. 3, 2016, 8:43 AM), http://www.salon.com/2016/11/03/the-oceans-are-suffocating-climate-change-is-causing-low-oxygen-levels_partner (commenting that lowered levels of dissolved oxygen "will result in losses of fisheries and biodiversity, poorer water quality, and knock-on effects ranging from falling tourism to reduced marine ecosystem services"); Karl Mathiesen, *15,000 Sq Km of Coral Reef Could be Lost in Current Mass Bleaching, Say Scientists*, GUARDIAN (July 7, 2015, 12:21 PM), https://www.theguardian.com/environment/2015/jul/07/six-percent-of-worlds-coral-could-be-lost-in-current-mass-bleaching-say-scientists (opining that the massive coral bleaching was most likely caused by global warming); *see also* Seth Borenstein, *The Amount of Man-Made Heat Energy Absorbed by the Seas Has Doubled Since 1997, a Study Released Showed*, U.S. NEWS & WORLD REP. (Jan. 19, 2016, 3:59 AM), http://www.usnews.com/news/politics/articles/2016-01-19/study-man-made-heat-put-in-oceans-has-doubled-since-1997 (noting that as ocean temperatures increase, the less heat oceans are able to absorb, thus leading to warmer land and air temperatures).

CO_2 from human emissions has made the oceans 30% more acidic than before the Industrial Revolution, jeopardizing shellfish survival.[47]

Scientists warn that the world faces dangerous "tipping points," which are capable of triggering irreversible and uncontrollable heating that would destroy the planet's climate system.[48] Almost ten years ago, the Ninth Circuit recognized this threat, stating that "climate change may be non-linear, meaning that there are positive feedback mechanisms that may push global warming past a dangerous threshold (the 'tipping point')."[49] As an example of just one such process, vast areas of melting permafrost now release large amounts of CO_2 and methane (both GHGs) into the atmosphere, causing a feedback loop that further increases the temperature on Earth and, in turn, melts more permafrost, causing an even greater release of GHGs.[50] Melting

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47. *See* Oliver Milman, *World's Oceans Warming at Increasingly Faster Rate, New Study Finds*, GUARDIAN (Jan. 18, 2016, 11:00 AM), https://www.theguardian.com/environment/2016/jan/18/world-oceans-warming-faster-rate-new-study-fossil-fuels (noting that raised acidity levels makes it more difficult for shellfish to form and sustain their shells); *see also Ocean Warming Doubles in Recent Decades*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Jan. 18, 2016), http://research.noaa.gov/News/NewsArchive/LatestNews/TabId/684/ArtMID/1768/ArticleID/11572/Ocean-warming-doubles-in-recent-decades.aspx (indicating that "half of the accumulated heat during the industrial era has occurred in recent decades, with about a third residing in the deeper oceans").

48. *See* Leslie McCarthy, *Research Finds that Earth's Climate is Approaching "Dangerous" Point*, NASA (MAY 30, 2017), http://www.nasa.gov/centers/goddard/news/topstory/2007/danger_point.html (discussing thresholds of global temperatures and atmospheric CO_2 that trigger dangerous interference with the climate system). *See generally* PEARCE, *supra* note 6, at xxiv–vi (explaining the severity of climate change and how the "tipping points" for permanent climate instability are closer than they appear).

49. Ctr. for Biological Diversity v. Nat'l Highway Traffic Safety Admin., 508 F.3d 508, 523 (9th Cir. 2007) (declaring the agency's rule on fuel-economy standards was arbitrary for failing to monetize benefits of greenhouse gas emissions reductions in setting overall fleet-wide averages for light trucks and finding a National Environmental Policy Act violation), *vacated*, 538 F.3d 1172 (9th Cir. 2008).

50. *See* Nafeez Ahmed, *Seven Facts You Need to Know About the Arctic Methane Timebomb*, GUARDIAN (Aug. 5, 2013, 1:01 AM), http://www.theguardian.com/environment/ earth-insight/2013/aug/05/7-facts-need-to-know-arctic-methane-time-bomb (examining the feasibility of the methane-permafrost-temperature feedback loop and concluding that such theories "should be taken seriously"); Martha Henriques, *40% of World's Permafrost Set to Thaw by 2100, Unlocking Billions of Tonnes of Carbon and Methane*, INT'L BUS. TIMES (Apr. 10, 2017, 4:12 PM), http://www.ibtimes.co.uk/40-worlds-permafrost-set-thaw-by-2100-unlocking-billions-tonnes-carbon-methane-1616356 (discussing the potential dangers associated with thawing permafrost, such as infrastructure collapse and the alteration of Arctic coastlines).

ice sheets create a similar feedback loop, known as the albedo effect, as less ice remains to reflect heat away from Earth.[51]

Delay in mounting an effective climate response allows tipping points—both known and unknown—to compound, necessitating further drastic and severe countermeasures to prevent runaway heating. As the trial court judge in the Washington atmospheric trust case starkly put it, "[The younger generations'] very survival depends upon the will of their elders to act now, decisively and unequivocally, to stem the tide of global warming by accelerating the reduction of emissions of GHGs before doing so becomes first too costly and then too late."[52] In June 2017, former UN climate chief Christiana Figueres, along with several climate analysts, announced that it was still possible, though barely, to avoid runaway climate change, but the effort requires a massive global project to bend down the CO_2 emissions curve by 2020, and to sustain rapid de-carbonization thereafter.[53] Stemming the tide of global warming will require a drastic departure from existing fossil-fuel policies.

A. Promoting Fossil-Fuel Policy with Little Regard for the Consequences

The combustion of fossil fuels accompanying the Industrial Revolution has led to a significant increase of CO_2 in the atmosphere over the last 150 years.[54] Although China surpassed the United States

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51. *See* James Hansen et al., *Climate Change and Trace Gases*, 365 PHIL. TRANSACTIONS ROYAL SOC'Y 1925, 1928–29, 1935 (2007) ("A climate forcing that 'flips' the albedo of a sufficient portion of an ice sheet can spark a cataclysm."); Mark Kinver, *Earth Warming to Climate Tipping Point, Warns Study*, BBC NEWS (Nov. 30, 2016), http://www.bbc.com/news/science-environment-38146248 (discussing how warming causes more organism activity under soil, resulting in increased carbon being released from the soil into the atmosphere).

52. Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362, at *2 (Wash. Super. Ct. Nov. 19, 2015).

53. *See* Fiona Harvey, *World Has Three Years Left to Stop Dangerous Climate Change, Warn Experts*, GUARDIAN (June 28, 2017, 1:00 PM), https://www.theguardian.com/environment/2017/jun/28/world-has-three-years-left-to-stop-dangerous-climate-change-warn-experts (alteration in original) (quoting Hans Joachim Schellnhuber, Director of the Potsdam Institute for Climate Impact Research) ("The math is brutally clear: while the world can't be healed within the next few years, it may be fatally wounded by negligence [before] 2020.").

54. *See Sources of Greenhouse Gas Emissions*, U.S. ENVTL. PROTECTION AGENCY (2017), https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (blaming human activity for the increase in GHGs in the atmosphere). CO_2 makes up the greatest portion—about 82%—of total GHG emissions. *See Overview of Greenhouse Gases: Carbon Dioxide Emissions*, U.S. ENVTL. PROTECTION AGENCY (2017), https://www.epa.gov/ghgemissions/overview-greenhouse-gases#carbon-dioxide.

as the highest annual CO_2 emitter in 2005, the United States remains the world's largest cumulative emitter of CO_2.[55] This responsibility for the lion's share of emissions is hardly surprising given the U.S. government's inexorable promotion of fossil fuels as the nation's primary energy policy.

For more than a century, three fossil fuels—petroleum, coal, and natural gas—have accounted for over 80% of the total energy consumption in the country.[56] Federal energy policy includes leasing of public lands for fossil fuel development, undervaluing of royalty rates for the leased lands,[57] near automatic permitting approval for extraction,[58] continued underwriting of the fossil fuel sector (including subsidies for exploration, consumption, and exportation), and extensive financing of international fossil fuel projects.[59]

Public records reveal that the federal government knew for decades of the danger these fossil fuel-promoting policies pose to the planetary climate system that underpins human survival. For example, a 1965 report by President Lyndon Johnson's Scientific Advisory Committee acknowledged that human-caused CO_2 emissions risk "the health, longevity, livelihood, recreation, cleanliness and happiness of citizens who have no direct stake in their production, but cannot escape their

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55. *See* Supplemental Declaration of Dr. James E. Hansen in Support of Plaintiffs' Opposition to Defendants' Motion to Dismiss at 4–5, Juliana v. United States, 217 F. Supp. 3d 1224 (D. Or. 2016) (No. 6:15-cv-01517-TC) (describing how, despite China's higher annual GHG emission levels, the United States still leads in all-time GHG emissions); John Vidal & David Adam, *China Overtakes US as World's Biggest CO2 Emitter*, GUARDIAN (June 19, 2007, 1:23 PM), https://www.theguardian.com/environment/2007/jun/19/china.usnews (explaining that China's lead in GHG emissions was caused by increased energy production from coal).

56. *Fossil Fuels Still Dominate U.S. Energy Consumption Despite Recent Market Share Decline*, U.S. ENERGY INFO. ADMIN. (July 1, 2016), https://www.eia.gov/todayinenergy/detail.php?id=26912.

57. *See Juliana* Complaint, *supra* note 30, at 61 (alleging that federal royalty rates are "consistently less" than state rates).

58. *See id.* at 60 (stating that 99% of drilling permit applications since 1985 have been approved).

59. *See* Sonali Prasad et al., *Obama's Dirty Secret: The Fossil Fuel Projects the US Littered Around the World*, GUARDIAN (Dec. 1, 2016, 7:00 AM), https://www.theguardian.com/environment/2016/dec/01/obama-fossil-fuels-us-export-import-bank-energy-projects (explaining how "[t]hrough the [U.S.] Export-Import Bank, Barack Obama's administration [had] spent nearly $34 [billion] supporting [seventy] fossil fuel projects around the world"); *see also Juliana* Complaint, *supra* note 30, at 61–62 (claiming that the United States used the Export-Import bank to finance fossil fuel development overseas).

influence."[60] In a 1990 report entitled, "Policy Options for Stabilizing Global Climate," the Environmental Protection Agency (EPA) reiterated the 1965 report's conclusion that CO_2 was a dangerous anthropogenic pollutant.[61] The 1990 report called for a 50% to 80% reduction in total U.S. CO_2 emissions by 2025, and it set a goal of stabilizing atmospheric CO_2 concentrations at 350 ppm to ensure global warming did not exceed 1.5 degrees Celsius above the preindustrial level.[62] The 1.5 degrees Celsius heating limit was believed then—and is still widely viewed—to be the line beyond which irrevocable climate disruption lies. The 2015 Paris climate agreement defined the 1.5 degrees C limit as an aspirational world-wide goal.[63]

For decades, a wide spectrum of government agencies published reports, studies, and recommendations exposing the dangers of continued fossil fuel combustion.[64] Instead of responding to these warnings with decisive actions, U.S. energy policy remains centered on promoting fossil fuels. Indeed, over the course of several decades, the fossil fuel industry contributed hundreds of millions of dollars to

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60. ENVTL. POLLUTION PANEL PRESIDENT'S SCI. ADVISORY COMM., RESTORING THE QUALITY OF OUR ENVIRONMENT 1 (1965) [hereinafter 1965 SAC REPORT], https://dge.carnegiescience.edu/labs/caldeiralab/Caldeira%20downloads/PSAC,%201965,%20Restoring%20the%20Quality%20of%20Our%20Environment.pdf.

61. *See* U.S. ENVTL. PROTECTION AGENCY, POLICY OPTIONS FOR STABILIZING GLOBAL CLIMATE 5–8 (Dec. 1990) [hereinafter 1990 EPA REPORT], nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=91014BJ0.TXT (discussing the impacts of global warming and how CO_2 contributes to global warming).

62. *See id.* at 8.

63. *See generally* Adam Vaughan, *Paris Climate Deal: Key Points at a Glance*, GUARDIAN (Dec. 12, 2015, 11:56 AM), https://www.theguardian.com/environment/2015/dec/12/paris-climate-deal-key-points (noting that the 1.5 degrees Celsius as an aspiration is meaningless without mechanisms in place to achieve that goal); *see also* Michael Le Page, *Paris Climate Deal is Agreed—But Is It Really Good Enough?*, NEW SCIENTIST (Dec. 12, 2015), https://www.newscientist.com/article/dn28663-paris-climate-deal-is-agreed-but-is-it-really-good-enough (arguing that countries are not willing to do enough to stop climate change, so the Paris Climate Deal will likely be a failure).

64. *See, e.g.*, 1965 SAC REPORT, *supra* note 60, at 1; 1990 EPA REPORT, *supra* note 61 (discussing the pervasive effect of pollutants on the "health, longevity, livelihood, recreation, cleanliness, and happiness of citizens"); TERRY P. KELLEY, U.S. NAVAL WAR COLL., GLOBAL CLIMATE CHANGE IMPLICATIONS FOR THE UNITED STATES NAVY 9–12 (1990), http://documents.theblackvault.com/documents/weather/climatechange/globalclimatechange-navy.pdf (arguing that human-caused global warming will have a serious impact on U.S. Naval facilities); Jason Plautz, *CIA Shuts down Climate Research Program*, ATLANTIC (May 21, 2015), https://www.theatlantic.com/politics/archive/2015/05/cia-shuts-down-climate-research-program/452502 (commenting that a government program, which allowed scientists access to intelligence information to study climate change, was shut down in 2015 after its resurgence in 2010).

political campaigns to purchase influence and thereby forestall regulation.[65] Consequently, there is still no comprehensive regulation or pricing of CO_2 emissions in the United States. The top fossil-fuel producers have collectively reaped more than $1 trillion in profits since the new millennium, while the global damage and human death toll from climate chaos escalates worldwide.[66]

B. Restoring Climate Stability: The Scientific Prescription

Although considerable climate harm is irrevocably underway, many leading scientists say it is still possible (albeit barely so) to restore climate equilibrium over the long term.[67] Such an effort would require reducing atmospheric CO_2 levels to 350 ppm, the limit at which the planet can head off warming in excess of 1.5 degrees Celsius.[68] In 2010, recognizing the need to quantify the emissions reduction necessary to stay within this safe zone, Dr. Hansen convened an international team of scientists to formulate a climate "prescription" for the planet.[69] This prescription remains a fulcrum for atmospheric trust litigation, representing the best available science concerning actions necessary to avert climate catastrophe.

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65. *See Fossil Fuel Funding to Congress: Industry Influence in the U.S.*, OIL CHANGE INT'L (2017), http://priceofoil.org/fossil-fuel-industry-influence-in-the-u-s (noting that oil and gas companies are one of the biggest political influencers, with over $42 million dollars spent on Congressional campaigns in 2013 and 2014 alone).

66. *See* Bill McKibben, *Global Warming's Terrifying New Math*, ROLLING STONE (July 19, 2012), http://www.rollingstone.com/politics/news/global-warmings-terrifying-new-math-20120719 (arguing that to slow climate change, there needs to be a carbon tax because it would decrease profits for the fossil fuel industry, leading to increased prices and, therefore, a decrease in consumer fossil fuel use).

67. *See* James Hansen et al., *Assessing "Dangerous Climate Change": Required Reduction of Carbon Emissions to Protect Young People, Future Generations and Nature*, 8 PLOS ONE, Dec. 2013, at 1, 17 [hereinafter Hansen et al., *Climate Prescription*], http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0081648&type=printable (explaining that restoring climate balance is still conceivable on a century time scale through technology advances and economic incentives); *supra* note 53 and accompanying text (noting that drastic changes must be made by 2020 in order to mitigate the worst effects of climate change).

68. *See id.*

69. *See* Suzanne Goldenberg, *UN's 2C Target Will Fail to Avoid a Climate Disaster, Scientists Warn*, GUARDIAN (Dec. 3, 2013, 6:28 PM), https://www.theguardian.com/environment/2013/dec/03/un-2c-global-warming-climate-change (reporting that Hansen and his team offered prescriptions such as a carbon tax at the point of entry and production and increased use of nuclear energy); *see also* Hansen et al., *Climate Prescription*, *supra* note 67.

The Hansen prescription addressed both carbon emissions and the planet's natural carbon absorption mechanisms, since they are inextricably linked. The first part of the climate prescription presents a trajectory—or "glidepath"—of annual emissions reduction towards an ultimate goal of near-zero emissions.[70] To reach 350 ppm by the end of the century, the team prescribed a global emissions reduction of 6% annually, beginning in 2013.[71] However, delayed reduction of carbon emissions sharply increases the level of necessary yearly reductions, perhaps to a point at which the reductions ultimately become too steep to plausibly salvage a habitable planet.[72] For example, the Hansen team estimated that if concerted climate-action started in 2005—fifteen years after the 1990 EPA report recommending taking action, emissions reductions of just 3.5% a year could have restored climate equilibrium at 350 ppm by the end of the century.[73] But after years of inaction, that figure climbed to 6% per year by 2013.[74] The scientists projected that, if emissions reductions are delayed until 2020, the necessary annual global emissions reduction will rocket to 15% per year.[75] At some point, the necessary cuts will become too drastic for society to accomplish on a global scale. As the Hansen team emphasized, "[I]t is urgent that large, long-term emission reductions begin soon."[76]

Reducing emissions alone, however, will not restore climate equilibrium. Because approximately 40% of emissions persist in the atmosphere for over a thousand years at present removal rates, any climate restoration must also focus on removing much of the CO_2 that has already accumulated in the atmosphere.[77] Accordingly, the second

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70. Hansen et al., *Climate Prescription*, *supra* note 67, at 10.

71. *Id.*

72. *See* PAUL BAER ET AL., STOCKHOLM ENV'T INST., THE THREE SALIENT GLOBAL MITIGATION PATHWAYS ASSESSED IN LIGHT OF THE IPCC CARBON BUDGETS 1 (2013), http://sei-us.org/Publications_PDF/SEI-DB-2013-Climate-risk-emission-reduction-pathways.pdf ("The 1.5 [degrees Celsius] marker pathway is defined as the most challenging mitigation pathway that can still be defended as being techno-economically achievable." (citing NIKLAS HÖHNE ET AL., FEASIBILITY OF GHG EMISSIONS PHASE-OUT BY MID-CENTURY 16 (2013), https://www.ecofys.com/files/files/ecofys-2013-feasibility-ghg-phase-out-2050.pdf)).

73. Hansen et al., *Climate Prescription*, *supra* note 67, at 10.

74. *See id.*

75. *Id.*

76. *Id.*

77. *See* William Moomaw, *From Failure to Success: Reframing the Climate Treaty*, FLETCHER F. WORLD AFF. (Feb. 10, 2014), http://www.fletcherforum.org/home/2016/8/22/from-failure-to-success-reframing-the-climate-treaty (examining how

part of the scientific climate prescription addresses the "drawdown" of CO_2 through massive reforestation (because trees naturally absorb CO_2) and improved agricultural measures (because soil also absorbs CO_2).[78] The Hansen team calculated that a full-scale massive restoration program could draw down about 100 gigatons (GT) of CO_2 from the atmosphere, the amount in 2013 that was key to restoring atmospheric carbon levels to 350 ppm.[79] However, because emissions reduction did not materialize at the projected rate in 2013 (emissions dropped only by 0.6% a year during 2012–2015, rather than 6%),[80] the drawdown amount must increase to compensate. Dr. Hansen calculated that further delay of emissions reduction for just three more years (until 2020) would increase the total CO_2 removal necessary by 50%, to 150 GT.[81]

These are the daunting effects of delay; metaphorically, they amount to an exponential rise in interest on the mortgage humanity took out on the planet through unrestricted use of fossil fuels. As one scholar noted, limiting global warming to 1.5 degrees Celsius at this point will take "a true world revolution."[82] A full and swift transition from fossil fuels to renewable fuels[83] will likely not be forthcoming without legal pressure, given the political barriers.[84]

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countries have failed to adequately address climate change and exploring solutions to the problem, including carbon sequestration).

78. *See* Hansen et al., *Climate Prescription*, *supra* note 67, at 10 (noting that such measures are necessary in conjunction with cutting emissions).

79. *See id.* (explaining that 100 GT storage will also benefit agricultural practices through biological nutrient recycling).

80. *See* James Hansen, *Rolling Stones*, DR. JAMES E. HANSEN COMM. (Jan. 11, 2017), http://www.columbia.edu/~jeh1/mailings/2017/20170111_RollingStones.pdf (stating that global emissions are unlikely to slow for the next few years).

81. *Id.*; *see also* Mary Hoff, *To Avoid Climate Catastrophe, We'll Need to Remove CO2 from the Air*, TRUTHOUT (Aug. 25, 2017), http://www.truth-out.org/news/item/41718-to-avoid-climate-catastrophe-we-ll-need-to-remove-co2-from-the-air (noting that while most experts agree that emissions reduction should be the initial focus of climate change mitigation strategies, these efforts alone will not be enough to reverse the climate trend, and removal of CO_2 will be necessary to restore atmospheric balance).

82. *See* Le Page, *supra* note 63 (quoting Piers Forster, University of Leeds).

83. For commentary on the transition, see Jeffrey D. Sachs, *US Must Transition to Low Carbon Energy*, BOS. GLOBE (Nov. 20, 2016), https://www.bostonglobe.com/opinion/2016/11/20/must-transition-low-carbon-energy/fTMoMoFaNIFIYr4NBLYkhM/story.html (noting that then-President-elect Donald Trump would "resist" the necessary switch from fossil fuels to renewable energy).

84. *See* David Roberts, *Donald Trump Is Handing the Federal Government Over to Fossil Fuel Interests*, VOX (June 14, 2017, 7:56 AM), https://www.vox.com/energy-and-environment/2017/6/13/15681498/trump-government-fossil-fuels ("[T]he Trump administration has been steady and true in its devotion to fossil fuel interests, giving

Such a transition could produce enormous co-benefits, preventing four to seven million deaths from pollution per year, creating some twenty million more jobs than would be lost in the transition, and stabilizing energy costs.[85] Phasing out fossil fuels also would safeguard society from the massive collateral damage that fossil fuel dependence imposes, including pipeline leaks,[86] exploding trains,[87] marine oil spill pollution,[88] fracking-induced earthquakes,[89] and groundwater pollution.[90]

There are clear signs that a transition is underway. As Richard Heinberg and David Fridley of the Post Carbon Institute claimed,

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them a greater presence inside executive agencies, stripping them of regulatory restraints, and proposing to defund their competitors.").

85. Mark Z. Jacobson et al., *100% Clean and Renewable Wind, Water, and Sunlight All-Sector Energy Roadmaps for 129 Countries of the World*, 1 JOULE 108, 108–10 (2017).

86. *See* George Joseph, *30 Years of Oil and Gas Pipeline Accidents, Mapped*, CITY LAB (Nov. 30, 2016), http://www.citylab.com/weather/2016/11/30-years-of-pipeline-accidents-mapped/509066 (noting that while pipeline accidents occur less frequently than road and rail transportation, lack of state and federal regulation will lead to difficulty in maintaining pipelines, thus causing more accidents).

87. *See* Kathryn A. Wolfe & Bob King, *Oil Boom Downside: Exploding Trains*, POLITICO (June 18, 2014, 5:01 AM), http://www.politico.com/story/2014/06/exploding-oil-trains-energy-environment-107966 (citing a spike in oil-train traffic and a lack of governmental regulation for the train incidents occurring in nearly every region of the United States); *see also* Eric de Place & Keiko Budech, *Oil Train Explosions: A Timeline in Pictures*, SIGHTLINE INST. (last updated Apr. 30, 2017), http://www.sightline.org/2015/05/06/oil-train-explosions-a-timeline-in-pictures (chronicling oil train explosions in North America through photos).

88. *See* Carolyn Embach, *Oil Spills: Impact on the Ocean*, WATER ENCYCLOPEDIA, http://www.waterencyclopedia.com/Oc-Po/Oil-Spills-Impact-on-the-Ocean.html (last visited Oct. 23, 2017) (explaining that oil spills have short- and long-term effects on marine populations and also harm human activities on the coast).

89. *See* Matthew Philips, *Why Oklahoma Can't Turn Off Its Earthquakes*, BLOOMBERG (Nov. 8, 2016, 11:43 AM), https://www.bloomberg.com/news/articles/2016-11-08/why-oklahoma-can-t-turn-off-its-earthquakes (noting that even after Oklahoma put restrictions on fracking wastewater disposal, the state is still experiencing earthquakes, and likely will for many years to come).

90. *See* Laurel Peltier, *Pennsylvania Fracking Water Contamination Much Higher than Reported*, ECOWATCH (Feb. 4, 2016, 9:42 AM) http://www.ecowatch.com/pennsylvania-fracking-water-contamination-much-higher-than-reported-1882166816.html (arguing that water contamination rates from fracking are higher than the EPA's reporting suggests due to disorganization of reporting in the Pennsylvania's Department of the Environment); *see also* Sharon Kelly, *BREAKING: $4.2 Million Jury Verdict Against Cabot Oil & Gas in Dimock, PA Water Contamination Lawsuit*, DESMOG (Mar. 10, 2016, 10:23 AM), https://www.desmogblog.com/2016/03/10/breaking-news-4-2-million-jury-verdict-dimock-pa-water-contamination-lawsuit-reported (reporting that most drilling and fracking cases against fossil fuel companies are resolved with secret settlements, hiding claims of accidents and misconduct).

"Fossil fuels are on their way out one way or another. . . ."[91] In fact, renewable energy already employs more people than the oil and gas industries,[92] and global investment in solar and wind is double that of fossil fuels.[93] The reasons are simple: (1) easy sources of fossil fuels have been tapped, so continuing to extract the remaining sources is less economically feasible;[94] and (2) the foundation of renewable energy sources is technology, not fuel, so prices should fall as efficiency increases.[95] Despite these changes, however, the market is not responsive to the urgency posed by climate crisis, and relying on a market-driven transition is unrealistic. As one analytical team observed, "[T]he shift to renewable energy isn't happening fast enough to avoid the catastrophic legacy of fossil-fuel dependence . . . ."[96]

Consequently, a comprehensive response to the climate crisis will require more than simply encouraging renewable energy investment and development; it now will necessitate aggressive curtailment of fossil-fuel extraction. Analysts warn that potential carbon emissions from currently operating oil and gas fields in the world can cause planetary heating greater than the 1.5 degrees Celsius increase targeted in the Paris agreement.[97] Operating coal mines alone could cause the planet to surpass a two degrees Celsius temperature rise.[98]

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91. RICHARD HEINBERG & DAVID FRIDLEY, OUR RENEWABLE FUTURE: LAYING THE PATH FOR ONE HUNDRED PERCENT CLEAN ENERGY 3 (2016).

92. *See* Anna Hirtenstein, *Clean-Energy Jobs Surpass Oil Drilling for First Time in U.S.*, BLOOMBERG (May 25, 2016, 10:00 AM), https://www.bloomberg.com/news/articles/2016-05-25/clean-energy-jobs-surpass-oil-drilling-for-first-time-in-u-s (reporting that the clean energy industry employs about 8.1 million people).

93. *See* Tom Randall, *Wind and Solar Are Crushing Fossil Fuels with Investment*, BLOOMBERG (Apr. 6, 2016), https://www.bloomberg.com/news/articles/2016-04-06/wind-and-solar-are-crushing-fossil-fuels.

94. *See* Richard Heinberg, *Rising Cost of Fossil Fuels and the Coming Energy Crunch*, OILPRICE.COM (July 12, 2011, 11:32 AM), http://oilprice.com/Energy/Energy-General/Rising-Cost-Of-Fossil-Fuels-And-The-Coming-Energy-Crunch.html (explaining the significant increase in per-barrel oil prices needed to incentivize companies to explore new oil sources).

95. *See* Randall, *supra* note 93 (arguing that solar power will ultimately overtake fuel because of decreasing costs arising from technological advancement).

96. *Id.*

97. *See* GREG MUTTITT ET AL., OIL CHANGE INT'L, THE SKY'S LIMIT: WHY THE PARIS CLIMATE GOALS REQUIRE A MANAGED DECLINE OF FOSSIL FUEL PRODUCTION 5 (2016), http://priceofoil.org/content/uploads/2016/09/OCI_the_skys_limit_2016_FINAL_2.pdf (examining the Paris agreement's climate boundaries and the agreement's implications for the oil and gas industry).

98. *Id.*

Quite simply, time is of the essence. As the Hansen team declared, "[W]e have a global emergency."[99]

II. ATMOSPHERIC TRUST LITIGATION AND THE *JULIANA* CASE

The *Juliana* case is part of a wave of atmospheric trust litigation launched by the non-profit organization, Our Children's Trust. Recognizing that looming tipping points necessitate a rapid and decisive response to the planet's atmospheric crisis—and that the crisis only worsened over several decades while the political branches indulged in climate-change denial—the Atmospheric Trust Litigation ("ATL") campaign has turned to the judiciary for eleventh-hour relief to force worldwide emissions reductions.[100]

ATL is a full-scale, coordinated movement, with multiple suits pending and others teed up in different forums, all connected by a common template of science and law.[101] As Professor Randall Abate observed, "Within the past five years, ATL has been a primary focus of climate justice litigation and it has made significant progress in advancing its theory in U.S. and foreign domestic courts."[102] The litigation campaign began in May 2011, when young people filed legal

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99. Hansen et al., *Sea Level Rise*, *supra* note 43, at 3801.

100. *See* Matthew Brown, *Climate Activists Target States with Lawsuits; Atmosphere as a "Public Trust,"* CNSNEWS.COM (May 4, 2011, 5:39 AM), http://www.cnsnews.com/news/article/climate-activists-target-states-lawsuits-atmosphere-public-trust (explaining that the goal of the lawsuits is for courts to declare that the atmosphere is a public trust); Gabriel Nelson, *Young Activists Sue U.S., States over Greenhouse Gas Emissions*, N.Y. TIMES (May 5, 2011) http://www.nytimes.com/gwire/2011/05/05/05greenwire-young-activists-sue-us-states-over-greenhouse-64366.html (reporting that fifty-two ATL lawsuits were filed almost simultaneously across the country). On the ATL campaign, see generally Mary Christina Wood, *Atmospheric Trust Litigation*, *in* ADJUDICATING CLIMATE CHANGE: STATE, NATIONAL, AND INTERNATIONAL APPROACHES 99, 99 (William C. G. Burns & Hari M. Osofsky eds., 2009), which "outlines the contours of potential 'atmospheric trust litigation,'" and Mary Christina Wood, *Atmospheric Trust Litigation Across the World*, *in* FIDUCIARY DUTY AND THE ATMOSPHERIC TRUST 99, 102 (Ken Coghill et al. eds., 2012) [hereinafter Wood, *ATL chapter*], which explains the legal strategy of ATL.

101. *See* Brown, *supra* note 100 (explaining ATL's nationally coordinated efforts).

102. *See* Randall S. Abate, *Atmospheric Trust Litigation in the United States: Pipe Dream or Pipeline to Justice for Future Generations?*, *in* CLIMATE JUSTICE: CASE STUDIES IN GLOBAL AND REGIONAL GOVERNANCE CHALLENGES 542, 561 (Randall S. Abate ed., 2016); *see also id.* at 557 ("[S]everal state courts have embraced the concept of ATL as a potential strategy to address climate change regulation in the courts, and it is rapidly gaining support.").

processes in every state in the United States, launched a federal suit,[103] and began plans for lawsuits in other countries as well.[104]

The suits and petitions were premised on the public trust doctrine, an ancient principle dating back 1500 years to public rights articulated in Roman law.[105] The modernized principle characterizes essential natural resources as part of an enduring ecological endowment—a "trust"—and designates government actors as trustees over essential resources, charging them with fiduciary duties of protection and restoration to sustain these resources for the benefit of the present and future public.[106] The public trust principle exists in every state[107] and is evident in the legal systems of nations throughout the world.[108] Professors Gerald Torres and Nathan Bellinger aptly described the principle as the "law's DNA."[109] With constitutional underpinnings, the public trust doctrine presents a fundamental-rights framework for articulating climate obligations that transcend jurisdictions across the planet.[110]

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103. The initial federal case, *Alec L. v. Jackson*, against the Obama administration, was unsuccessful because the U.S. District Court for the District of Columbia dismissed the case, deciding that the public trust did not bind the federal government. 863 F. Supp. 2d 11 (D.D.C. 2012), *aff'd sub nom.*, Alec L. *ex rel.* Loorz v. McCarthy, 561 F. App'x 7 (D.C. Cir. 2014) (per curiam); *see* Abate, *supra* note 102, at 553 (discussing the possible ATL strategies available after *Alec L.*).

104. For a comprehensive set of ATL updates and materials, consult *Our Children's Trust*, http://ourchildrenstrust.org (last visited Oct. 23, 2017).

105. *See* Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 MICH. L. REV. 471, 475 (1970) (outlining the history of the public trust doctrine in Roman and English law).

106. For a discussion on the public trust framework, see Mary Christina Wood & Charles W. Woodward, IV, *Atmospheric Trust Litigation and the Constitutional Right to a Healthy Climate System: Judicial Recognition at Last*, 6 WASH. J. ENVTL. L. & POL'Y 634, 648–55 (2016).

107. *See* MICHAEL C. BLUMM & MARY CHRISTINA WOOD, THE PUBLIC TRUST DOCTRINE IN ENVIRONMENTAL AND NATURAL RESOURCES LAW 29 (2d ed. 2015) ("First surfacing in Roman law through the Justinian Code, [the public trust] . . . became entrenched in American law in the nineteenth century through the process of statehood"); Michael C. Blumm et al., *The Public Trust Doctrine in 45 States*, (Lewis & Clark Law School Legal Studies Research Paper 2014), https://ssrn.com/abstract=2235329 (surveying the public trust doctrine across United States jurisdictions).

108. *See* Blumm & Wood, *supra* note 107, at 333–64 (surveying the jurisprudence, constitutions, and statutes of India, the Philippines, Uganda, Kenya, Pakistan, South Africa, Norway, Sweden, Finland, and Canada, among other countries).

109. Gerald Torres & Nathan Bellinger, *The Public Trust: The Law's DNA*, 4 WAKE FOREST J.L. & POL'Y 281, 283–85 (2014).

110. Where specific constitutional or statutory provisions of a jurisdiction provide trust protection, the youth plaintiffs often have asserted those as well in their ATL complaints and administrative petitions. *See, e.g.*, Petition for Original Jurisdiction at

The basic ATL case applies public trust principles to the atmosphere,[111] making the following claims: (1) the air and atmosphere, along with other vital natural resources, are within the *res* of the public trust, and therefore subject to special sovereign obligations; (2) the legislature and its implementing agencies are public trustees; (3) both present and future generations of the public are beneficiaries of the public trust; (4) the government trustees owe a fiduciary duty of protection against "substantial impairment" of the air, atmosphere, and climate system, which amounts to an affirmative duty to restore its balance; and (5) courts have a duty to enforce these trust obligations. Scores of cases make clear that the public trust principle imposes obligations separate from statutory law.[112] Throughout the course of the ATL campaign, law professors submitted amicus briefs in key cases to explain the basis and scope of the public trust, its constitutional character, and the crucial role of the judiciary in enforcing the public trust in the present climate context.[113]

The ATL approach recognizes that, in order to curb global warming, the law must reflect the actual physical, chemical, and biological requirements of the planet. ATL petitions and lawsuits demand enforceable climate recovery plans from government trustees to reduce carbon emissions at the rate called for by the best available science, epitomized by the scientific prescription described above.[114]

3, Barhaugh v. State, 264 P.3d 518 (Mont. 2011) (NO. OP 11-0258), https://static1.squarespace.com/static/571d109b04426270152febe0/t/5768120fe6f2e19198908d2b/1466438160482/MT.Petition.pdf; Petition of Sherley et al. to the Mass. Dep't of Envtl. Prot. at 6, (Nov. 1, 2012), https://static1.squarespace.com/static/571d109b04426270152febe0/t/57609324356fb0f59a89b317/1465946918296/2012.10.31-FINAL+MA+Petition_0.pdf.

111. *See* Abate, *supra* note 102, at 552 (stating that ATL was developed in response to climate change with the intent to include the atmosphere as part of the public trust).

112. *See, e.g.*, Parks v. Cooper, 676 N.W.2d 823, 837 (S.D. 2004) ("The doctrine exists independent of any statute."); Kootenai Envtl. All., Inc. v. Panhandle Yacht Club, Inc., 671 P.2d 1085, 1095 (Idaho 1983) (noting that compliance with legislative authority alone is not sufficient to determine public trust compliance).

113. For links to law professors' amicus briefs filed in Oregon, North Carolina, New Mexico, Alaska, and the District of Columbia, see *Law Library*, OUR CHILDREN'S TRUST https://www.ourchildrenstrust.org/lawlibrary (last visited Oct. 23, 2017). The authors are part of the law professors' amicus group.

114. *See supra* Section I.B (discussing a climate "prescription" to reduce carbon emissions for the planet). The initial prescription was developed by the scientific team for the litigation and disseminated in May 2011. *See* MARY CHRISTINA WOOD, NATURE'S TRUST: ENVIRONMENTAL LAW FOR A NEW ECOLOGICAL AGE 221 (2014) [hereinafter WOOD, NATURE'S TRUST] (explaining the Hansen team's climate prescription).

The campaign anticipates long-term implementation of climate recovery plans under continuing court supervision, a remedy characteristic of other types of institutional litigation.[115] Although conventional statutory approaches held promise when the world had several decades to confront the growing climate crisis, the deadlines imposed by nature's tipping points now require a judicial remedy that can deliver widespread relief tailored to the rapid carbon emissions reduction necessary to avoid planetary calamity.[116]

Beyond its potential to offer relief on a macro-scale, the ATL campaign brings a fundamental rights approach to climate crisis. Statutory and regulatory law can be vulnerable to erratic political whims of the legislative and executive branches, producing extreme destabilization from one administration to the next—as evidenced by President Trump's changes to the Obama climate initiatives.[117] The climate crisis demands broad, enduring, system-changing solutions that hold the promise of protecting life, liberty, and property. As a complement to existing statutes, ATL aims to set firm boundaries on political discretion through the assertion of fundamental rights of constitutional character that cannot be ignored by the current administration or any other.[118]

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115. WOOD, NATURE'S TRUST, *supra* note 114, at 240–47.

116. Statutory law fractures government's overall climate responsibility into isolated, disjointed parts falling to an array of separate agencies. Even when a statutory lawsuit is successful, it narrowly focuses on one contentious permit, rule, program, or other isolated action. Moreover, the remedies under statutory law are often procedural, typically returning the process to a recalcitrant agency free of continuing judicial supervision. Within the framework of a macro-remedy, however, statutory law provides many of the tools for accomplishing emissions reduction. For example, the Clean Air Act provides the EPA with authority to regulate emissions. *See infra* Section VII.A.3.

117. As Magistrate Coffin observed in *Juliana*, "[T]he intractability of the debates before Congress and state legislatures and the alleged valuing of short term economic interest despite the cost to human life, necessitates a need for the courts to evaluate the constitutional parameters of the action or inaction taken by the government." Order and Findings & Recommendation at 8, Juliana v. United States, 217 F. Supp. 3d 1224 (D. Or. 2016) (No. 6:15-cv-01517-TC), ECF No. 68 [hereinafter *Juliana* Findings I]; *see also* Wood et al., *supra* note 34.

118. *See* Wood et al., *supra* note 34 (explaining how ATL may help "put the brakes on dirty energy policy"); *see also* Order Denying Motion for Order of Contempt and Granting Sua Sponte Leave to File Amended Pleading, Foster v. Wash. Dep't of Ecology at 4, 14-2-25295-1 SEA, 2015 WL 7721362 (Wash. Super. Ct. Sept. 5, 2017) [hereinafter *Foster* Order of Contempt Denial], https://static1.squarespace.com/static/571d109b04426270152febe0/t/585979e1d1758ec9d1667705/1482343090836/FostervEcology-2016-12-19-141247 (noting with approval that "courts have recognized the

The *Juliana* case was filed in the U.S. District Court for the District of Oregon in September 2015, on behalf of twenty-one youth plaintiffs from across the United States,[119] challenging—quite literally—the entire fossil-fuel policy of the United States. The suit named multiple federal agencies with control over the United States' fossil-fuel policies as defendants.[120] Early in the *Juliana* litigation, the fossil-fuel industry intervened through trade associations, siding with the federal government in defending U.S. fossil-fuel practices.[121]

The *Juliana* complaint asserted that, by promoting the development of fossil fuels, the federal government violated the youngest generation's constitutional rights and both caused and allowed substantial impairment of essential natural resources protected by the public trust.[122] The complaint described the entire fossil-fuel regime and chronicled its governmental support over decades through massive subsidies, regulatory permits, leasing, exploration, drilling and mining public lands and offshore areas, and approving export proposals.[123] Describing a pattern that "shock[s] the conscience,"[124] the youth plaintiffs alleged:

> For over fifty years, the United States of America has known that [CO_2] pollution from burning fossil fuels was causing global warming and dangerous climate change, and that continuing to burn fossil fuels would destabilize the climate system on which present and future generations of our nation depend for their

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role of the third branch of government in protecting the earth's resources that it holds in trust").

119. *See Juliana* Complaint, *supra* note 30, at 8–38.

120. In addition to President Obama, the defendants included the EPA and the Departments of Transportation, Energy, Interior, State, Commerce, Defense, Agriculture, the Council on Environmental Quality, the Office of Management and Budget, and the Office of Science and Technology Policy. *Id.* at 38–51. The case also challenged a contested fossil fuel export project, the Jordan Cove Liquefied Natural Gas Terminal, and its associated proposed pipeline, which would cross the state of Oregon. *Id.* at 3.

121. *See* Order at 3, Juliana v. United States, 217 F. Supp. 3d 1224 (D. Or. 2016) (No. 6:15-cv-01517-TC), ECF No. 50 (listing as interveners the National Association of Manufacturers, the American Fuel & Petrochemical Manufacturers, and the American Petroleum Institute).

122. *See Juliana* Complaint, *supra* note 30, at 3–5. The U.S. District Court for the District of Columbia dismissed an earlier case based on a similar argument, *Alec L. v. Jackson*, in part on displacement grounds. 863 F. Supp. 2d 11, 17 (D.D.C. 2012), *aff'd sub nom.*, Alec L. *ex rel.* Loorz v. McCarthy, 561 F. App'x 7 (D.C. Cir. 2014) (per curiam) (deciding that the Clean Air Act displaced the public trust claim).

123. *See Juliana* Complaint, *supra* note 30, at 51–63.

124. *See id.* at 86.

> wellbeing and survival. Defendants also knew the harmful impacts of their actions would significantly endanger Plaintiffs, with the damage persisting for millennia. Despite this knowledge, Defendants continued their policies and practices of allowing the exploitation of fossil fuels . . . .
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> . . . .
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> . . . *Defendants have acted with deliberate indifference to the peril they knowingly created.*[125]

The *Juliana* plaintiffs also charged that "[t]he present level of [GHG emissions] and [associated] warming, both realized and latent, are already in the zone of danger," asserting that "our country is now in a period of 'carbon overshoot,' with early consequences that are already threatening and that will, in the short term, rise to unbearable unless [the government] take[s] immediate action."[126] They pointed out that the harm is likely to continue into the foreseeable future, particularly from ocean acidification, rising sea levels, damaged fresh water resources, and other irretrievable impacts.[127] Moreover, the youths alleged that the federal government—controlling over a quarter of the planet's GHG emissions—has no plan to constrain those emissions to levels that do not threaten the ecological functions of the planet.[128]

Through detailed allegations, the complaint portrayed the potential irreparable harm of a most grave and unrelenting kind. Unlike many forms of harm addressed routinely by the legal system, climate disruption cannot be corrected by monetary compensation, for the conditions supporting life cannot be readily restored once lost. Moreover, the magnitude of harm alleged by plaintiffs falls into an unprecedented category, as it hovers inexorably—and in nearly unfathomable variations—not only over the plaintiffs' entire generation, but over all foreseeable future generations as well. The haunting prospect of such irreparable harm both brings this case into the protective tradition of civil law but also sets it apart from any other precedent in terms of the human interests at stake and the expediency with which court rulings must issue in a time of urgency. Such irreparable harm forms the cornerstone of not just the *Juliana* case but of all other atmospheric trust cases brought on the state and global level—reflecting the core human rights struggle in resisting fossil fuels.

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125. *Id.* at 3, 5 (emphasis added).
126. *Id.* at 5–6.
127. *Id.* at 74–76.
128. *Id.* at 3, 6.

As for a remedy, the *Juliana* plaintiffs sought a judicial order requiring government defendants "to prepare and implement an enforceable national remedial plan" to stabilize the climate system in accordance with the best available science.[129] As reflected in the Hansen team's prescription described above,[130] the plan must comprise both (1) a de-carbonization project to fully phase out fossil-fuel emissions; and (2) a draw-down project to naturally extract existing excess atmospheric CO_2.[131] The plaintiffs seek continuing court jurisdiction to monitor and enforce implementation of the national remedial plan.[132]

The youth plaintiffs gained an initial victory in the litigation in April 2016 when Magistrate Judge Thomas Coffin recommended denial of the government's and fossil-fuel interveners' motions to dismiss in all aspects.[133] Magistrate Coffin also found that the plaintiffs' stated claims for relief were grounded in the due process and equal protection guarantees as well as the federal public trust principle, implicit in the constitution.[134] On the youths' standing, Coffin stated, "Given the allegations of direct or threatened direct harm, albeit shared by most of the population or future population, the court should be loath to decline standing to persons suffering an alleged concrete injury of a constitutional magnitude."[135]

Magistrate Coffin's findings were then reviewed by Judge Ann Aiken, U.S. District Judge for the District of Oregon. Oral argument took place in September 2016, drawing hundreds of school children to the federal courthouse.[136] In November 2016, Judge Aiken issued a

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129. *Id.* at 95.

130. *See supra* notes 55–66 and accompanying text.

131. *See Juliana* Complaint, *supra* note 30, at 95.

132. *Id.*

133. *Juliana* Findings I, *supra* note 117, at 24.

134. *Id.* at 17.

135. *Id.* at 7. For coverage of the case, see James Conca, *Federal Court Rules on Climate Change in Favor of Today's Children*, FORBES (Apr. 10, 2016, 6:00 AM), http://www.forbes.com/sites/jamesconca/2016/04/10/federal-court-rules-on-climate-change-in-favor-of-todays-children/#273936b06219, and John Schwartz, *In Novel Tactic on Climate Change, Citizens Sue Their Governments*, N.Y. TIMES (May 10, 2016), http://www.nytimes.com/2016/05/11/science/climate-change-citizen-lawsuits.html.

136. Rachael McDonald, *Federal Judge in Oregon Weighs Dismissal of Youths' Climate Suit*, OPB (Sept. 13, 2016, 4:10 PM), http://www.opb.org/news/article/federal-judge-weighs-youth-climate-suit-dismissal; *see also* Our Children's Trust, *Aiken to Hear Youth v. United States Climate Case #KidsvGov*, EVENSI, https://www.evensi.us/aiken-to-hear-youth-v-united-states-climate-case-wayne/180137962 (last visited Oct. 23, 2017)

groundbreaking opinion affirming Magistrate Coffin, validating the youth's claims, and denying the defendants' motions to dismiss.[137]

The case proceeded to the discovery phase with a trial expected in early 2018.[138] In May 2017, in a stunning development, the industry interveners moved to withdraw from the case.[139] The motion was granted by the court on June 28, 2017.[140] Meanwhile, the federal defendants embarked on a strategy to delay the discovery and filed an interlocutory appeal to the Ninth Circuit.[141] On June 8, 2017, Judge Ann Aiken affirmed Magistrate Coffin's recommendations to deny defendants' motion to certify an appeal to the Ninth Circuit.[142] Judge Aiken's order thereby ended the defendants' pursuit of an interlocutory appeal through normal processes, but the Trump administration responded by filing a motion for a writ of mandamus

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(inviting the public to attend a march from a Eugene, Oregon high school to the courthouse for oral arguments).

137. *See* Juliana v. United States, 217 F. Supp. 3d 1224, 1263 (D. Or. 2016); *see also* John Blackstone, *"Bring It On": Students Sue Trump Administration over Climate Change*, CBS NEWS (Apr. 21, 2017, 7:20 PM), http://www.cbsnews.com/news/our-childrens-trust-students-sue-trump-administration-over-climate-change (reporting that the case was allowed to proceed and that it was likely to start in late 2017).

138. *See* Chelsea Harvey, *This Climate Lawsuit Could Change Everything. No Wonder the Trump Administration Doesn't Want It Going to Trial*, WASH. POST (Mar. 9, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/03/09/this-climate-lawsuit-could-change-everything-no-wonder-the-trump-administration-doesnt-want-it-going-to-trial [hereinafter Harvey, *Climate Lawsuit*] (stating that the case cleared early procedural hurdles and will proceed to trial).

139. *See* Chelsea Harvey, *These Fossil-Fuel Groups Joined a Historic Climate Lawsuit. Now, They Want to Get out of It*, WASH. POST (May 26, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/05/26/three-fossil-fuel-groups-joined-a-historic-climate-lawsuit-now-they-want-to-get-out-of-it (suggesting that the interveners may wish to withdraw from the case in order to avoid responding to the plaintiffs' requests for admissions).

140. Order at 5, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 182.

141. *See* Harvey, *Climate Lawsuit*, *supra* note 138 (reporting that the defendants claimed that they would be "irreparably injured" if they had to go through discovery). On March 7, 2017, federal defendants filed a motion before Magistrate Thomas Coffin to certify an order for an interlocutory appeal. Memorandum in Support of Federal Defendants' Motion to Certify Order For Interlocutory Appeal, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 121-1. On May 1, 2017, Magistrate Coffin issued a thorough opinion recommending denial of the motion to certify and appeal. *See Juliana* Findings II, *supra* note 30. He noted, "If anything, the plaintiffs' due process claim has been enhanced since the complaint was filed given the significant admissions made by the federal defendants after the Order denying the motions to dismiss." *Id.* at 10. As to the public trust, Magistrate Coffin reiterated the strong basis of the federal public trust obligation and added, "The implications of . . . forsaking of a federal public trust doctrine by the Government are staggering." *Id.* at 13.

142. Order at 4, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 172.

with the Ninth Circuit, seeking an appeal.[143] Multiple groups, including some sixty-three law professors, submitted amicus briefs on behalf of the youth plaintiffs urging the Ninth Circuit to deny the government's motion for a writ of mandamus and allow the trial to

143. *See* Chelsea Harvey, *"We're Still on Fast-Track to Trial": Kids' Climate Lawsuit Against Trump Administration Stays Alive*, WASH. POST (June 12, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/06/12/were-still-on-fast-track-to-trial-kids-climate-lawsuit-against-trump-administration-stays-alive. Professor Douglas Kyser analyzed the move in the following terms:

> Writs of mandamus are reserved for the most extraordinary and compelling situations in which ordinary rules of appellate procedure must be overridden to avoid a manifest injustice. For the Trump Justice Department to even seek a writ of mandamus in the current context is offensive to Judge Aiken, to the entire federal judiciary, and, indeed, to the rule of law itself. The writ should not be granted and we should all question why the Trump Administration's lawyers are willing to try such a trick rather than forthrightly defend the case.
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> When the Framers divided power within the government, they did it so that the branches could not only check and balance each other, but also poke and prod when necessary. The *Juliana* litigation is a powerful poke and prod to the entire federal government on the question of climate responsibility. In that sense, *Juliana* might well be the most important lawsuit on the planet right now and the government knows it. That's why Trump's lawyers are so desperate to avoid an honest fight.

"Most Important Lawsuit in the World," MERCURY NEWS INT'L, http://www.mercurypress.com/most_important_lawsuit_in_the_world (last visited Oct. 23, 2017). Invited by the Ninth Circuit motions panel to submit a letter in response to the defendants' motion seeking a writ of mandamus, Judge Aiken and Magistrate Coffin recommended that the case should proceed to trial rather than being interrupted by an interlocutory appeal. Letter from U.S. Dist. Court Judge Ann Aiken & U.S. Magistrate Judge Thomas Coffin to the Ninth Circuit Motions Panel (Aug. 25, 2017), https://static1.squarespace.com/static/571d109b04426270152febe0/t/59a08038cd39c3292add0e79/1503690808950/US+District+Court+letter+to+Ninth+Circuit.pdf (explaining that the appeals court should not grant the "extraordinary" remedy of mandamus because (1) the youth plaintiffs have no other means to obtain the desired relief; (2) the case raises new and important issues of the first impression; and (3) the government will not be irrevocably damaged by proceeding to trial because any error can be corrected through the normal appeals process following judgment; Judge Aiken and Magistrate Coffin maintained that their discovery and trial management plan would narrow the scope of the plaintiffs' discovery requests, aided by the intervenors' exit from the litigation, and noted the apparent absence of any allegedly objectionable discovery rulings thus far; they also pointed to their plan to hold a bifurcated trial, first focusing on standing to sue and liability, and then proceeding to a remedial phase).

proceed.[144] As of this writing, that motion was still pending.[145] The discussion below first explores the procedural defenses addressed in the landmark *Juliana* opinion and then proceeds into a discussion of the substantive legal issues.

III. PROCEDURAL THRESHOLDS

As is often the case in climate lawsuits against the government, the *Juliana* defendants raised procedural defenses involving the political question doctrine and the doctrine of standing.[146] Judge Aiken rejected the government's arguments that the case involved an unreviewable political question, relying heavily on the Supreme Court's criteria for political questions established in *Baker v. Carr*,[147] the landmark redistricting case.[148] Judge Aiken also dismissed the government's allegation that the youths lacked standing.[149]

We consider each of these preliminary matters in turn below, but we first note a broader theme identified by Yale law professor Douglas Kysar and R. Henry Weaver in a probing article on climate litigation.[150] Kysar and Weaver recounted the early dismissal of nearly all tortious climate cases brought before *Juliana*, based on procedural grounds.[151] They wrote that "[w]hether through deference, displacement, or

144. *See* Juan Carlos Rodriguez, *Enviros, Law Groups Urge 9th Circ. Not to Nix Climate Suit* LAW360 (Sept. 5, 2017), https://www.law360.com/articles/960649/enviros-law-groups-urge-9th-circ-not-to-nix-climate-suit; *see also* Brief of Amicus Curiae Law Professors in Support of Plaintiff-Appellants' Opposition to Defendant's Motion for Writ of Mandamus, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), http://delawarelaw.widener.edu/files/resources/amicusbriefinjuliana.pdf.

145. The Ninth Circuit panel issued a temporary stay in the district court proceedings to allow for briefing. *See* Order Granting Temporary Stay, United States v. U.S. Dist. Court for the Dist. of Or., No. 17-71692, 2017 WL 2537433 (June 9, 2017).

146. *See* Memorandum in Support of Intervenor-Defendants' Motion to Dismiss at 17–27, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 20 (arguing that the Complaint should be dismissed for lack of standing and contending that the issue presents a non-justiciable political question).

147. 369 U.S. 186 (1962) (articulating the modern version of the political question doctrine and ruling that redistricting was not an unreviewable political question).

148. *See Juliana*, 217 F. Supp. 3d at 1235–38 (applying the political question standards articulated in *Baker* and concluding that the *Juliana* case did not present a nonjusticiable political question).

149. *Id.* at 1242–47 (finding that the plaintiffs met the standing requirements of injury-in-fact, causation, and redressability).

150. *See* Weaver & Kysar, *supra* note 45 (manuscript at 32–40) (detailing courts' unwillingness to allow climate change to be addressed through tort law).

151. *Id.*

deliberate sabotage, anxious courts have found ways to ignore the climate change plaintiff."[152] These decisions represent, in aggregate, a troubling mass "retreat" from the actual, imminent, and rapidly worsening, context of climate change.[153] Judicial inaction is hardly neutral, for as Kysar and Weaver pointed out, "inaction can inflict a symmetric violence."[154]

A. The Political Question Defense

The fossil-fuel industry intervenors and the government contended that the court lacked jurisdiction because the case involved a non-justiciable political question, an issue the government has successfully invoked in other environmental cases.[155] The political question doctrine, first articulated by Chief Justice John Marshall in *Marbury v.*

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152. *Id.* (manuscript at 32).

153. *Id.* (manuscript at 35).

154. *Id.* (manuscript at 9). The authors drew upon the work of Linda Ross Meyer, who described a judicial response of "nihilism" to broad catastrophe: "Rather than expand the bounds of law to domesticate disaster, 'the nihilist acknowledges the normative challenge that the catastrophe represents and stays there. The normative ground is gone, anomie reigns . . . .'" *Id.* at 9 (quoting Linda Ross Meyer, *Catastrophe: Plowing up the Ground of Reason*, *in* LAW AND CATASTROPHE 19, 22 (Austin Sarat et al. eds., 2007)). Kysar and Weaver brought this insight to the climate context, explaining:

> The error of the nihilist judge is to . . . abdicate their duty to decide because of the complex or dramatic nature of a harm and the remedy it seems to necessitate. For instance, judges seem to believe that, short of ordering a whole restructuring of the global economy, their only option in climate change litigation is to avoid exercising jurisdiction in the first place. *Again, stuck in a binary choice between denial and nihilism, most courts opt for the latter.*

Id. (manuscript at 67) (emphasis added) (citations omitted).

155. *See, e.g.*, Alex L. v. Jackson, 863 F. Supp. 2d 11, 16–17 (D.D.C. 2012), *aff'd sub nom.*, Alex L. *ex rel.* Loorz, v. McCarthy, 561 F. App'x 7 (D.C. Cir. 2014) (per curiam) (declaring that federal regulatory action is "best left to the federal agencies that are better equipped, and that have a Congressional mandate"); Sanders-Reed v. Martinez, 350 P.3d 1221, 1225–27 (N.M. Ct. App. 2015) (noting that the New Mexico constitution imposes a public trust duty on the state, but the state incorporated that duty into the state's Air Quality Act, which provides the exclusive scheme for reviewing administrative decisions, in part because of separation of power grounds). *But see* Kanuk *ex rel.* Kanuk v. State, Dep't of Nat. Res., 335 P.3d 1088, 1097–103 (Alaska 2014) (deciding that the public trust doctrine was not a political question, but dismissing three of the plaintiffs' claims because they involved a policy question falling within the competency of political branches of government, and dismissing others because relief was not prudential); Butler *ex rel.* Peshlakai v. Brewer, No. 1 CA-CV 12-0347, 2013 WL 1091209, at *5 (Ariz. Ct. App. Mar. 14, 2013) (rejecting the state's argument that "the determinations of what resources are included in the [Public Trust] Doctrine and whether the State has violated the Doctrine are non-justiciable").

Madison,[156] forecloses judicial review of certain questions that courts determine are more appropriate for resolution by the political branches of government.[157]

In *Baker v. Carr*, which ruled that political redistricting was not immune from judicial review under the political question doctrine, Justice William Brennan identified several criteria by which courts may identify political questions.[158] The most important of these principles are: (1) a demonstrable commitment to a non-judicial branch of government; (2) a lack of judicially manageable standards for resolving an issue; and (3) the impossibility of deciding the dispute without an initial policy choice clearly appropriate for non-judicial discretion.[159]

Judge Aiken engaged in a searching inquiry of the political question doctrine, noting its importance in assuring an appropriate balance of power between the three branches of government.[160] As Judge Aiken observed, "[A] court cannot simply err on the side of declining to exercise jurisdiction when it fears a political question may exist; it must instead diligently map the precise limits of jurisdiction."[161]

Judge Aiken determined that the first factor did not apply because "climate change policy is not *inherently*, or even primarily, a foreign policy decision."[162] Aiken proceeded to conclude that the other two factors

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156. 5 U.S. (1 Cranch) 137 (1803).

157. *Id.* at 170 ("Questions, in their nature political, or which are, by the constitution and laws, submitted to the executive, can never be made in this court."). *See generally* Tara Leigh Grove, *The Lost History of the Political Question Doctrine*, 90 N.Y.U. L. REV. 1908 (2015) (discussing the political question doctrine's origins in *Marbury* and its subsequent evolution).

158. 369 U.S. 186, 217 (1962).

159. *Id.* Other criteria Justice Brennan identified were (1) the impossibility of a court's resolving an issue without expressing a lack of respect to coordinate branches; (2) an unusual need to adhere to a political decision already made; and (3) the potential of embarrassment from multifarious pronouncements by various branches to the same issue. *Id.* The intervenor-defendants in *Juliana* argued only the first three of the *Baker* factors.

160. Juliana v. United States, 217 F. Supp. 3d 1224, 1235 (D. Or. 2016) ("The political question doctrine is 'primarily a function of the separation of powers.'" (quoting *Baker*, 369 U.S. at 210)). This discussion focuses only on the three *Baker* factors that the intervenor-defendants argued. However, Judge Aiken's detailed and careful analysis addressed all six of the *Baker* factors, concluding that the case implicated none of them.

161. *Id.* at 1236.

162. *Id.* at 1238. Moreover, as Magistrate Coffin later concluded in recommending denial of the motion to certify an appeal, the fact that climate change is subject to political debate does not mean it is a political question for jurisprudential purposes: "To the extent Intervenors are suggesting that the topic of 'climate change' is formed and determined by political values and is thus a non-justiciable political question, such

were likewise inapplicable because the plaintiffs did indeed present a dispute within the court's competence. Remarking on the plaintiffs' charge that the government's "*aggregate actions* violate[d] their substantive due process rights and the government's public trust obligations,"[163] Judge Aiken emphasized, "At its heart, this lawsuit asks this Court to determine whether defendants have violated plaintiffs' constitutional rights. That question is squarely within the purview of the judiciary."[164]

The defendants complained that, by not identifying violations of statutory or regulatory law, the plaintiffs left the court without standards to apply. But Judge Aiken responded that "[p]laintiffs could have brought a lawsuit predicated on technical regulatory violations, but they chose a different path. . . . Every day, federal courts apply the legal standards governing due process claims to new sets of facts."[165]

The court recognized that the plaintiffs sought broad-based relief in the form of a national remedial plan, and that the "[c]ourt could issue the requested declaration without directing any individual agency to take any particular action."[166] Judge Aiken acknowledged that the court would have to "exercise great care" in fashioning a remedy that would "avoid separation-of-powers problems," perhaps by declaring that the government must "ameliorate plaintiffs' injuries" but not "specify[ing] precisely how to do so."[167]

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an argument must be emphatically rejected." *Juliana* Findings II, *supra* note 30, at 8; *see also id.* at 7 ("Nowhere in the Constitution is there a textual commitment of climate change related issues to a specific branch of government.").

163. *Juliana*, 217 F. Supp. 3d at 1240. The court stated that the "plaintiffs do not ask this Court to pinpoint the 'best' emissions level; they ask this Court to determine what emissions level would be sufficient to redress their injuries. That question can be answered without any consideration of competing interests." *Id.* at 1239. The court also dismissed the other *Baker* factors, noting that these factors should only rarely make a case nonjusticiable. *Id.* at 1240. Judge Aiken explained that a judicial declaration of the plaintiffs' due process rights would be fully consistent with international commitments, nor would it interfere with "a political decision already made" or produce an "embarrassment" to the other branches of government. *Id.* at 1241.

164. *Id.* at 1241. The court noted that the youth plaintiffs shared "key features" with the *Baker* plaintiffs because they are "minors who cannot vote and must depend on others to protect their political interests;" thus, their claims are "rooted in a 'debasement of their votes.'" *Id.* (citing Amicus Brief for the League of Women Voters in the United States et al. at 19–20, *Juliana*, 217 F. Supp. 2d 1224 (No. 6:15-cv-01517-TC), ECF No. 79-1).

165. *Id.* at 1239.

166. *Id.*

167. *Id.* at 1241. The court observed that "speculation about the difficulty of crafting a remedy could not support dismissal at this early stage" of the litigation. *Id.* at 1242.

The recent decision of the Ninth Circuit in *Washington v. Trump*,[168] upholding a district court injunction of the initial Trump executive order on immigration, may be a harbinger of how the Ninth Circuit could react to Judge Aiken's opinion. A unanimous panel of the court rejected the federal government's argument that the President's immigration decisions, especially when motivated by national security, were not judicially reviewable, a position quite similar to the government's invocation of the political question doctrine in *Juliana*.[169] The court had little difficulty in rejecting this allegation, explaining that courts "routinely review the constitutionality of—and even invalidate—actions taken by the executive to promote national security."[170] The Ninth Circuit panel explained that a claim of unreviewability of executive and legislative acts "runs contrary to the fundamental structure of our constitutional democracy" and concluded that it was "beyond question" that the federal judiciary may remedy constitutional violations by the Executive.[171] If alleged actions in defense of national security are reviewable, the dangerous atmospheric pollution at issue in *Juliana* should be equally subject to judicial scrutiny.

B. Standing

The government and industry defendants also challenged the standing of the twenty-one youth plaintiffs in the *Juliana* case. As a threshold inquiry, standing requires the plaintiff to demonstrate that the injury complained of is: (1) concrete, particularized, and actual or imminent; (2) fairly traceable to the defendant's conduct; and (3) likely to be redressed by a favorable court decision.[172] With respect to the first factor, requiring concrete harm, nearly thirty pages of the youth plaintiffs' complaint detailed specific harm already happening to plaintiffs as a result of climate disruption in their regions.[173] In the opening oral argument of the *Juliana* case, plaintiffs' attorney introduced Jayden F., a thirteen-year-old Louisiana plaintiff sitting

168. 847 F.3d 1151 (9th Cir. 2017) (per curiam).

169. *Id.* at 1164; *see supra* notes 147–49 and accompanying text (discussing the *Juliana* court's rejection of the defendants' arguments).

170. *Trump*, 847 F.3d at 1163 (citing Boumediene v. Bush, 553 U.S. 723 (2008) (upholding federal habeas jurisdiction despite executive and congressional objection over so-called "enemy combatants")).

171. *Id.* at 1161, 1164 (quoting *Boumediene*, 553 U.S. at 765 (noting that the "political branches" lack the authority "to switch the Constitution on or off at will")).

172. Juliana v. United States, 217 F. Supp. 3d 1224, 1242 (D. Or. 2016).

173. *Juliana* Complaint, *supra* note 30, at 6–33.

before the court, as a victim of extreme flooding just two weeks prior.[174] The government contended that because climate harm affects everyone on Earth, plaintiffs' injuries amounted to a "nonjusticiable generalized grievance" defeating the case or controversy requirement of Article III of the Constitution.[175] The court, however, thought otherwise, citing a plethora of cases holding that a plaintiff asserting a "concrete and particularized" injury does not lack standing, even if many others experience harm from the same action.[176] The opinion highlighted the plight of Jayden, noting that she and her siblings woke up in their house on August 13, 2016 to find floodwaters "pouring into [their] home through every possible opening" and "a stream of sewage

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174. *See* Declaration of Jayden F. in Support of Plaintiffs' Opposition to Defendants' Motions to Dismiss at 2, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 78. The flooding in Louisiana was a type of flood event that would normally happen every 1000 years but is occurring more frequently now, arguably a result of climate change. John Upton, *Louisiana Floods Directly Linked to Climate Change*, CLIMATE CENT. (Sept. 7, 2016) (discussing how climate change increased the intensity of Louisiana floods in 2016), http://www.climatecentral.org/news/louisiana-floods-directly-linked-to-climate-change-20671; *see also* Lauren Sommer, *With Climate Change, California Is Likely to See More Extreme Flooding*, NPR (Feb. 28, 2017), http://www.npr.org/2017/02/28/517495739/with-climate-change-california-is-likely-to-see-more-extreme-flooding (noting that climate change is likely to cause more extreme flooding in California); Ian Urbina, *Perils of Climate Change Could Swamp Coastal Real Estate*, N.Y. TIMES (Nov. 24, 2016), https://www.nytimes.com/2016/11/24/science/global-warming-coastal-real-estate.html (discussing how climate change and floods impact real estate).

175. *Juliana*, 217 F. Supp. 3d at 1243 (arguing that the plaintiffs' injuries are not particular because climate change affects the entire planet).

176. *Id.* at 1243–44; *see also id.* at 1247 (observing that "the possibility that some other individual or entity might later cause the same injury does not defeat standing—the question is whether the injury *caused by the defendant* can be redressed"). Later, in recommending denial of the federal defendants' motion to certify an appeal, Magistrate Coffin forcefully reiterated the position, stating,

> Plaintiffs have alleged, and federal defendants have since admitted, that human induced climate change is harming the environment to the point where it will relatively soon become increasingly less habitable causing an array of severe deleterious effects to them which includes an increase in allergies, asthma, cancer, cardiovascular disease, stroke, heat related morbidity and mortality, food-borne disease, injuries, toxic exposures, mental health and stress disorders, and neurological diseases and disorders. These are concrete, particularized, actual or imminent injuries to the plaintiffs that are not minimalized by the fact that vast numbers of the populace are exposed to the same injuries. *It would surely be an irrational limitation on standing which allowed isolated incidents of deprivation of constitutional rights to be actionable, but not those reaching pandemic proportions.*

Juliana Findings II, *supra* note 30, at 14 (emphasis added).

and water running through [their] house."[177] The court also found "concrete and particularized" harm that is "actual or imminent" from other harms alleged in the complaint, such as (1) drought that damaged salmon harvests; (2) high temperatures that harmed orchards and required new irrigation systems; (3) decreased snowpack that inhibited recreational skiing; (4) forest fires that injured asthmatics; and (5) algae blooms that harmed drinking water supplies.[178]

As to the second standing factor, the court determined that the plaintiffs' injuries were "fairly traceable" to the challenged government actions and inactions because—at least at the motion to dismiss stage—the judge was bound to accept the plaintiffs' allegations as true.[179] Judge Aiken also noted plaintiffs' allegation that the federal government had jurisdiction over "a substantial share of worldwide [GHG] emissions," as the second-largest producer and consumer of global CO_2 emissions.[180] The court decided that, although causal chains may be difficult to prove on the merits, at the pleading stage they were sufficient to establish a satisfactory causal link between the government's conduct and the alleged injuries.[181]

Finally, as to the third standing factor, Judge Aiken decided that the youths' injuries could be redressed by judicial relief. Reasoning that, because the federal government controlled a substantial amount of global GHG emissions, a reduction of those emissions would reduce atmospheric pollution and slow climate change.[182] The fact that some uncertainty remained was not disabling because all that the factors required was a "substantial likelihood that the Court could provide meaningful relief."[183] The plaintiffs' request that the court order the

177. *Juliana*, 217 F. Supp. 3d at 1243 (noting also that "[w]ith no shelters available and nowhere else to go, the family remained in the flooded house for weeks," sleeping together in the living room "because "the bedrooms [were] uninhabitable").

178. *See id.* at 1242, 1244.

179. *Id.* at 1244–45 (observing that "at the motion to dismiss stage, a federal court is in no position to say it is impossible to introduce evidence to support a well-pleaded causal connection" and noting that "climate science is constantly evolving").

180. *Id.* at 1245. The court observed the plaintiffs' allegation that for 263 years, the United States has produced over two-thirds of global CO_2 emissions and that the plaintiffs had articulated a plausible chain of causation: government agencies with jurisdiction over 64% of U.S. CO_2 emissions, or 14% of global emissions, "allow[ed] high emissions levels by failing to set demanding standards; high emissions levels cause[d] climate change; and climate change cause[d] plaintiffs' injuries." *Id.* at 1245–46.

181. *Id.* at 1246.

182. *See id.* at 1247–48.

183. *Id.* at 1247.

government to "cease their permitting, authorizing, and subsidizing fossil fuels" and "ensure that atmospheric [carbon pollution] is no more concentrated than 350 ppm by 2100" through a national plan to stabilize the climate was, according to Judge Aiken, adequate to establish standing to sue.[184]

IV. FUNDAMENTAL RIGHTS AND THE ENVIRONMENT

Although the young plaintiffs set forth several distinct claims arising from separate provisions of the Constitution, for simplicity's sake the court referred to those as "due process claims."[185] One of these claims arose from the plaintiffs' contention that the government tolerated or caused GHG emissions "to rise to levels that dangerously interfere with a stable climate system," thereby knowingly endangering their health and welfare.[186] Further, even after recognizing the dangerous situation, the government perpetuated the danger by continuing to promote and allow dangerous levels of fossil fuel production, consumption, and combustion.[187]

Addressing a subset of the plaintiffs' due process and equal protection claims, the court engaged in an inquiry as to whether the right to a climate system capable of sustaining human life is a fundamental constitutional right.[188] Fundamental rights are examined under strict scrutiny, meaning government action will be invalid unless it demonstrates the action is narrowly tailored and serves a compelling state interest.[189] Without such close judicial review, Judge Aiken thought that the government's "affirmative actions would survive rational basis review."[190]

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184. *Id.* at 1247–48.

185. *Id.* at 1248 & n.6 (noting that the plaintiffs alleged due process claims encompass equal protection violations and violations of the Ninth Amendment).

186. *Id.* at 1248.

187. *See id.* at 1246. The complaint alleged three constitutional violations based on the express clauses in the constitution: (1) due process; (2) equal protection; and (3) unenumerated rights preserved by the Ninth Amendment. *See Juliana* Complaint, *supra* note 30, at 84–93. The court failed to address all the claims in detail, but distinctions among them may become pivotal in the fact-finding stage.

188. *Juliana*, 217 F. Supp. 3d at 1248–49, 1248 n.6. (stating that resolution of the due process claim "therefore hinges on whether plaintiffs have alleged infringement of a fundamental right").

189. *Id.* at 1248–49 (citing Reno v. Flores, 507 U.S. 292, 302 (1993)).

190. *Id.* at 1249.

A. A Fundamental Right to a "Climate System Capable of Sustaining Human Life"

Fundamental liberty rights may be expressly enumerated in the Constitution or "(1) 'deeply rooted in this Nation's history and tradition' or (2) 'fundamental to our scheme of ordered liberty.'"[191] Aware that the Supreme Court cautioned that such rights be articulated only with the "utmost care,"[192] Judge Aiken turned to recent Supreme Court decisions announcing fundamental liberty rights to privacy, procreation, and marriage for guidance.[193] Quoting Justice Kennedy's admonition in *Obergefell v. Hodges*,[194] the right-to-marry case, to the effect that "the nature of injustice is that we might not always see it in our own times,"[195] Judge Aiken understood that a court must exercise "reasoned judgment" when deciding on fundamental rights.[196] She recognized that "identification and protection of fundamental rights is an enduring part of the judicial duty to interpret the Constitution."[197] Judge Aiken also observed that the marriage right recognized by the Court supported other vital liberties like family and social order.[198]

With these background principles in mind, Judge Aiken articulated a fundamental liberty right to a "climate system capable of sustaining

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191. *Id.* (quoting McDonald v. City of Chi., 561 U.S. 742, 767 (2010)).

192. *Id.* (citing Washington v. Glucksberg, 521 U.S. 702, 720 (1997)).

193. *Id.* at 1249–50 (citing Roe v. Wade, 410 U.S. 113, 152–53 (1973) (identifying privacy and procreation, including the right to an abortion)); Obergefell v. Hodges, 135 S. Ct. 2584, 2598 (2015) (marriage)).

194. 135 S. Ct. 2584 (2015).

195. *Juliana*, 217 F. Supp. 3d at 1249 (quoting *Obergefell*, 135 S. Ct. at 2598). In *Obergefell*, Justice Kennedy poignantly wrote,

> 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 . . . did not presume to know the extent of freedom in all 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.

135 S. Ct. at 2598.

196. *Juliana*, 217 F. Supp. 3d at 1249.

197. *Id.* (quoting *Obergefell*, 135 S. Ct. at 2598). Further quoting *Obergefell*, Judge Aiken also stated that the responsibility to declare fundamental rights "has not been reduced to any formula. . . . [H]istory and tradition guide and discipline this inquiry but do not set its outer boundaries . . . [since] future generations [may] protect . . . the right of all persons to enjoy liberty as we learn its meaning." *Id.* (quoting *Obergefell*, 135 S. Ct. at 2598).

198. *Id.* at 1250.

human life," saying that the court had "no doubt that the right . . . is fundamental to a free and ordered society."[199] Aiken reasoned that "[j]ust as marriage is the 'foundation of the family,' a stable climate system is quite literally the foundation 'of society, without which there would be neither civilization nor progress.'"[200] Judge Aiken described plaintiffs' claims as "[e]choing *Obergefell*'s reasoning" in their assertion that "a stable climate is a necessary condition to exercising other rights to life, liberty, and property."[201] She rejected the government's characterization that the youth plaintiffs sought freedom from all pollution, describing their claim as one that argued only against GHG pollution that threatened catastrophic results.[202] Then, writing with a broader stroke, Judge Aiken noted, "To hold otherwise would be to say that the Constitution affords no protection against a government's knowing decision to poison the air its citizens breathe or the water its citizens drink."[203]

Although the court relied heavily on the Supreme Court's marriage and procreation decisions,[204] it could have cited several other fundamental rights declared by the Supreme Court over the years.[205] For example, the right of privacy is fundamental—even though it is

199. *Id.*

200. *Id.* (quoting *Obergefell*, 135 S. Ct. at 2598). The court also cited a case from the Supreme Court of the Philippines, Oposa v. Factoran, G.R. No. 101083, 224 S.C.R.A. 792, 804–05 (S.C. July 30, 1993) (Phil.), which stated that without "a balanced and healthful ecology," future generations "stand to inherit nothing but parched earth incapable of sustaining life."

201. *Juliana*, 217 F. Supp. 3d at 1250.

202. *See id.* ("Plaintiffs do not object to the government's role in producing *any* pollution or causing *any* climate change; rather, they assert the government has caused pollution and climate change on a catastrophic level, and that if the government's actions continue unchecked, they will permanently and irreversibly damage plaintiffs' property, their economic livelihood, their recreational opportunities, their health, and ultimately their (and their children's) ability to live long, healthy lives.").

203. *Id.*

204. *See supra* notes 193–96 (discussing the application of *Roe* and *Obergefell* in the *Juliana* case).

205. *See* JOHN E. NOWAK & RONALD D. ROTUNDA, CONSTITUTIONAL LAW § 11.7 (7th ed. 2004) (surveying Supreme Court cases establishing several fundamental rights, including the freedom of association, right to vote, right to interstate travel, right to fairness in the criminal process, and right to privacy); AKHIL REED AMAR, AMERICA'S CONSTITUTION: A BIOGRAPHY 385 (2005) (listing fundamental rights that the Court has interpreted as protected through the Fourteenth Amendment, such as freedom of religion, a substantive right, and the right to a jury trial, a procedural right).

implicit[206]—protecting marital, child-rearing, and private sexual choices.[207] Similarly, exercising the right to vote, to participate in the political process, and to travel interstate are fundamental liberties.[208] There are also fundamental rights to fair process in criminal cases and in government deprivations of property and liberty.[209] These decisions make clear that the Supreme Court has a long history of finding fundamental rights implicit in the Constitution, and the *Juliana* result is consistent with the judicial approach to defining other fundamental rights. If rights to privacy, procreation, marriage, and interstate travel are fundamental liberty rights, the right to a healthful atmosphere that can sustain human life and protect property would seem no less fundamental. A healthful atmosphere forms the linchpin to survival and, indeed, remains the precondition to exercising all other political and civil fundamental rights.[210]

Judge Aiken did not suggest that the Due Process Clause protects all environmental claims; she limited the decision to "the right to a climate system capable of sustaining human life," clarifying that such a right would not transform "any minor or even moderate act that contributes to the warming of the planet into a constitutional violation."[211] But those acts that "affirmatively and substantially

206. *See* Griswold v. Connecticut, 381 U.S. 479, 483 (1965) (stating that the right of privacy is protected by the "penumbra[s]" of several constitutional provisions, including due process).

207. *See, e.g.*, Lawrence v. Texas, 539 U.S. 558, 578 (2003) (striking down a state statute forbidding sodomy); Boddie v. Connecticut, 401 U.S. 371, 382 (1971) (holding that welfare recipients could not be denied the right to divorce because of high court fees); Loving v. Virginia, 388 U.S. 1, 12 (1967) (invalidating a state law outlawing mixed-race marriages); Pierce v. Soc'y of Sisters, 268 U.S. 510, 534–35 (1925) (declaring unconstitutional an initiative forbidding parochial schools); Meyer v. Nebraska, 262 U.S. 390, 403 (1923) (annulling a state statute that forbade teaching German in public schools).

208. *See, e.g.*, Shapiro v. Thompson, 394 U.S. 618, 642 (1969) (invalidating a state law requiring a year of residency to collect welfare payments as an equal protection violation); Harper v. Va. Bd. of Elections, 383 U.S. 663, 670 (1966) (holding that a state poll tax was unconstitutional because "the right to vote is too precious, too fundamental to be so burdened or conditioned"); Carrington v. Rash, 380 U.S. 89, 96 (1965) (striking down a state law prohibiting members of the armed forces from moving to Texas and voting while in the service).

209. *See* NOWAK & ROTUNDA, *supra* note 205, § 11.7 (elaborating on "fairness in the criminal process" and procedural due process as fundamental rights).

210. Judge Aiken reserved questions of whether the government actually violated the plaintiffs' due process and public trust rights for trial. *See* Juliana v. United States, 217 F. Supp. 3d 1224, 1269 (D. Or. 2016).

211. *Id.* at 1250.

damag[e] the climate system in a way that will cause human deaths, shorten human lifespans, result in widespread damage to property, threaten human food sources, and dramatically alter the planet's ecosystem" would, according to Judge Aiken, violate due process.[212]

B. Challenging Government Inaction: The "Danger Creation" Exception

Judge Aiken recognized that, with limited exceptions, the due process clause does not impose an affirmative obligation on the government to act, even where necessary to protect due process rights.[213] One such exception—the "danger creation" exception—arises when government conduct puts an individual in peril due to a "deliberate indifference" to safety.[214] This indifference must be the product of a "culpable mental state more than gross negligence."[215]

The *Juliana* plaintiffs maintained that, "with full appreciation of the consequences," the government defendants knowingly caused—and continue to cause—"dangerous interference with our atmosphere and climate system."[216] They cited the government's "longstanding, actual knowledge of the serious risks of harm" posed by its failure to confront climate change.[217] Further, they alleged that the government had "a unique and central role" in creating the climate crisis "with full knowledge of the significant and unreasonable risks" involved.[218] Judge Aiken decided that the youth plaintiffs stated a valid claim in their assertion that the government's actions and inactions put the public "in peril in deliberate indifference to their safety."[219] She agreed that if the plaintiffs could prove their allegations at trial, which

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212. *Id.*

213. *Id.* at 1250–51 (citing Deshaney v. Winnebago Cty. Dep't of Soc. Servs., 489 U.S. 189, 196 (1989)).

214. *Id.* (citing Penilla v. City of Huntington Park, 115 F.3d 707, 709 (9th Cir. 1997)).

215. *Id.* at 1251 (citing Pauluk v. Savage, 836 F.3d 1117, 1125 (9th Cir. 2016)).

216. *Id.*

217. *Id.*

218. *Id.*

219. *Id.* at 1250–51 (quoting Penilla v. City of Huntington Park, 115 F.3d 707, 709 (9th Cir. 1997). Judge Aiken emphasized that, at trial, the plaintiffs must show that

> the government *knew* its acts caused that danger; and [that] . . . the government with *deliberate indifference* failed to act to prevent the alleged harm. These stringent standards are sufficient safeguards against the flood of litigation concerns raised by [the government]—indeed, they pose a significant challenge to plaintiffs in this very lawsuit.

Id. at 1252.

Judge Aiken stated would require "rigorous proof," due process would require government action to reduce emissions under the danger-creation exception.[220]

V. THE PUBLIC TRUST DOCTRINE AND THE ATMOSPHERE

The *Juliana* case summons an ancient principle for a decidedly modern—indeed unprecedented—global threat. Some have accused the PTD of being irrelevant in a statutory era,[221] potentially undermining democracy and the separation of powers.[222] Government defendants characteristically describe the public trust principle as a mere common law doctrine limited to submerged lands and applicable only to the states.[223] None of those criticisms and perceived limitations are well-founded. In *Juliana*, Judge Aiken gave an accurate interpretation of the PTD's origin, scope, and effect and contributed a trailblazing recognition that the PTD is implicit in constitutional due process. The court's opinion decisively brings the PTD into the twenty-first century.

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220. *Id.* at 1252 ("A plaintiff asserting a danger-creation due process claim must show (1) the government's acts created the danger to the plaintiff; (2) the government *knew* its acts caused the danger; and (3) the government with *deliberate indifference* failed to act to prevent the alleged harm."). The court rejected the government's claim that the danger-creation exception did not apply to the federal government. *Id.*

221. *See* Richard J. Lazarus, *Changing Conceptions of Property and Sovereignty in Natural Resources: Questioning the Public Trust Doctrine*, 71 IOWA L. REV. 631, 658 (1986) (arguing that the public trust doctrine is outdated, irrelevant, and "theoretically inconsistent with new notions of property and sovereignty"). *But see* Michael C. Blumm, *Two Wrongs?: Correcting Professor Lazarus's Misunderstanding of the Public Trust Doctrine*, 46 ENVTL. L. 481, 487–88 (2016) (countering Professor Lazarus's criticism of the PTD and explaining that the doctrine may be invoked both as a governmental defense in regulatory taking cases and as an affirmative means of protecting public resources from monopolization).

222. James L. Huffman, *A Fish out of Water: The Public Trust Doctrine in a Constitutional Democracy*, 19 ENVTL. L. 527, 533 (1989) (claiming that the modern implementation of the PTD by courts threatens individual liberties and the basic values of constitutional democracy).

223. *See, e.g.*, Alec L. v. Jackson, 863 F. Supp. 2d 11, 13 (D.D.C. 2012) (explaining that the PTD traditionally functioned as a restraint on a state's ability to "alienate submerged lands in favor of public access to . . . those lands"), *aff'd sub nom.*, Alec L. *ex rel.* Loorz, v. McCarthy, 561 F. App'x 7, 8 (D.C. Cir. 2014) (per curiam).

A. The PTD as Implicit in Sovereignty

A clarion aspect of *Juliana* was its recognition that the PTD is an inherent constitutional limit on sovereignty.[224] As Judge Aiken aptly noted, by limiting the ability of the legislature to dispose of essential natural resources, the principle protects the power of future legislatures to "provide for the well-being and survival of its citizens."[225] Like the police power and the right of condemnation, the PTD is an inherent "attribute of sovereignty"—recognized, but not created by the Constitution.[226] As Aiken noted, the PTD is an ancient doctrine, originating in Roman law and finding its way to the United States through England.[227] The doctrine therefore applies equally to the federal as well as state governments, as discussed below.[228] Moreover, the PTD should raise no separation of power concerns when the courts merely pronounce the law and require the political branches to exercise their discretion within those bounds.[229] The *Juliana* decision

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224. *Juliana*, 217 F. Supp. 3d at 1252–53; *see, e.g.*, Robinson Twp. v. Commonwealth, 83 A.3d 901, 948–49 (Pa. 2013) (deciding that the PTD is a pre-existing right, inherent in the state of Pennsylvania's Constitution but not created by it).

225. *Juliana*, 217 F. Supp. 3d at 1253 (quoting Brief for Global Catholic Climate Movement et al. as Amici Curiae Supporting Plaintiffs at 3, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 51-1).

226. The Tenth Amendment recognized state police powers, but it did not create them. U.S. CONST. amend. X ("The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."). Likewise, the right to condemn private property was not created by the Fifth Amendment, but merely subjected to "public use" and "just compensation" requirements. U.S. CONST. amend. V ("[N]or shall private property be taken for public use without payment of just compensation.").

227. *Juliana*, 217 F. Supp. 3d at 1253 (explaining that the PTD's application to natural resources predates the United States, having roots in Roman law, the foundation for modern civil law systems) (citation omitted). For background on the origins of the PTD, see BLUMM & WOOD, *supra* note 108, at 10–51.

228. *See, e.g.*, Michael C. Blumm & Lynn S. Schaffer, *The Federal Public Trust Doctrine: Misinterpreting Justice Kennedy and* Illinois Central Railroad, 45 ENVTL. L. 399, 412–13 (2015) (discussing how the *Illinois Central* Court invoked the reserved powers doctrine, applicable to both state and federal governments); Charles F. Wilkinson, *The Public Trust Doctrine in Public Land Law*, 14 U.C. DAVIS L. REV. 269, 277–78 (1980) (noting that even though state governments and the federal government have different obligations, case law increasingly suggests that the PTD applies to public lands controlled by both).

229. Nor does the PTD threaten private property rights, despite much commentary to the contrary. *See* Michael C. Blumm, *The Public Trust Doctrine and Private Property: The Accommodation Principle*, 27 PACE ENVTL. L. REV. 649, 655 (2010) (explaining how the PTD functions to mediate public and private rights).

is certainly one in which the court aimed to invigorate, not intrude upon, the political branches of government.

In deciding that the PTD was an inherent aspect of sovereignty, Judge Aiken quoted Justice Kennedy's language in *Idaho v. Coeur d'Alene Tribe of Idaho*,[230] which declared that the PTD developed as "a natural outgrowth of the perceived public character of submerged lands, a perception which underlies and informs the principle that these lands are tied in a unique way to sovereignty."[231] As an inherent limit on sovereignty, the PTD applies to all sovereigns, not just the states.[232] This limit—preserved by but not created by the Constitution[233]—is an "obligation [that] cannot be legislated away."[234] Recognition of the inalienable nature of the PTD would prove dispositive as to the plaintiffs' PTD claims in *Juliana*.

B. The Scope of the PTD and the Duty of Protection

Judge Aiken framed the scope of the PTD by noting that public trust assets have long been part of a "taxonomy of property" recognizing the division of natural wealth into private and public property.[235] The sovereign cannot abdicate control over public trust property, as made clear in *Illinois Central Railroad v. Illinois*[236] when the Supreme Court said the Illinois legislature could not grant the shoreline of Lake

230. 521 U.S. 261 (1997).

231. *Juliana*, 217 F. Supp. 3d at 1257 (quoting *Coeur d'Alene Tribe*, 521 U.S. at 286).

232. *Id.* at 1257–58 (arguing the federal government is subject to the PTD concerning land it condemned). Judge Aiken cited two cases supporting the notion that the PTD applies to the federal government. *See id.* at 1258–59 (citing City of Alameda v. Todd Shipyards Corp., 635 F. Supp. 1447, 1450 (N.D. Cal. 1986) (holding that the federal government is subject to the PTD concerning land it condemned); United States v. 1.58 Acres of Land, 523 F. Supp. 120, 124 (D. Mass. 1981) (same)); *see also Juliana*, 217 F. Supp. 3d at 1257 (citing United States v. 32.42 Acres of Land, 683 F.3d 1030, 1038 (9th Cir. 2012)) (declining to reject a federal PTD concerning state lands that the federal government condemned). Judge Aiken thought the D.C. Circuit Court of Appeals's cursory unpublished opinion rejecting a federal PTD was unpersuasive. *Id.* at 1258 (citing Alec L. *ex rel.* Loorz v. McCarthy, 561 F. App'x 7, 8 (D.C. Cir. 2014)); *see also* Blumm & Schaffer, *supra* note 228, at 400–01, 430 (arguing that the *Alec L.* court misinterpreted the PTD).

233. *Juliana*, 217 F. Supp. 3d at 1260.

234. *Id.* at 1260–61 ("Governments, in turn, possess certain powers that permit them to safeguard the rights of the people; these powers are inherent in the authority to govern and cannot be sold or bargained away.").

235. *Id.* at 1253.

236. 146 U.S. 387 (1892).

Michigan to a private railroad company.[237] Judge Aiken broadly referred to the "natural resources trust," noting that "[i]n natural resources cases, the trust property consists of a set of resources important enough to the people to warrant public trust protection."[238] Although Aiken cited considerable authority for the proposition that air and atmosphere fall within the scope of the public trust,[239] the court found it unnecessary to decide the question,[240] anchoring the plaintiff's trust claims instead in the territorial seas.[241] Observing that the federal government owns most of the submerged land in the territorial seas,[242] and recognizing the long-settled public trust over "lands beneath tidal waters," Aiken found a viable PTD claim because a number of plaintiff's injuries were caused by GHG pollution of the atmosphere that produced ocean acidification and rising ocean temperatures.[243]

Juliana was not the only decision to interpret the scope of the PTD to reach the atmosphere because of its effects on navigable waters. In

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237. *Id.* at 453–56.

238. *Juliana*, 217 F. Supp. 3d at 1254.

239. *See id.* at 1255 n.10 (citing United States v. Causby, 328 U.S. 256, 261 (1946) (holding that private airspace rights are unfounded because the public has a claim to the atmosphere); Matthews v. Bay Head Improvement Ass'n, 471 A.2d 355, 365 (N.J. 1984) (concerning the capacity of the PTD to evolve to meet changing conditions); Arnold v. Mundy, 6 N.J.L 1, 71 (1821) (describing air as "common property"); Robinson Twp. v. Commonwealth, 83 A.3d 901, 955 (Pa. 2013) (stating that the "ambient air" was a PTD resource because it was a "public natural resource" that implicated the public interest and was "outside the scope of purely private property"); Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362, at *4 (Wash. Super. Ct. Nov. 19, 2015) (concerning the close relationship of navigable waters and the atmosphere); J. INST. 2.1.1 (J.B. Moyle trans., Oxford Clarendon Press 1913) (treating air and atmosphere as public trust assets through reference to Justinian's description of air as "by natural law common to all"); Mary C. Wood, *Atmospheric Trust Litigation Across the World*, *in* FIDUCIARY DUTY AND THE ATMOSPHERIC TRUST 113 (Ken Cogill et al. eds., 2012) (explaining that air was long thought to be incapable of privatization and thus did not appear in historic early PTD common law)).

240. *Juliana*, 217 F. Supp. 3d at 1255 & n.10 ("I conclude that it is not necessary at this stage to determine whether the atmosphere is a public trust asset . . . [,] but today's opinion should not be taken to suggest that the atmosphere is not a public trust asset.").

241. *Id.* at 1255.

242. *Id.* at 1255–56 ("The federal government holds the title to the submerged lands between three and twelve miles from the coastlines of the United States." (citation omitted)).

243. *Id.* at 1256. Ocean acidification is the ongoing increase in the acidity of the Earth's oceans, caused by the uptake of CO_2 from the atmosphere. *See, e.g.*, Ken Caldeira & Michael E. Wickett, *Oceanography: Anthropogenic Carbon and Ocean pH*, 425 NATURE 365 (2003) (explaining that as CO_2 levels increase in the ocean, pH levels decrease, resulting in acidification).

Foster v. Washington Department of Ecology,[244] a Washington Superior Court stated that "[the youths'] very survival depends upon the will of their elders to act now, decisively and unequivocally, to stem the tide of global warming," emphasizing the inextricable relationship between navigable waters and the atmosphere and deciding that separating the two was "nonsensical."[245] The Alaska Supreme Court also suggested that the close relationship between the pollution of the atmosphere and the pollution of the oceans raised a PTD issue.[246] Although there is growing precedent that the atmosphere is a PTD resource,[247] even courts that do not expressly acknowledge the doctrine as a trust asset recognize a PTD claim when atmospheric pollution adversely affects traditional trust resources.

The *Juliana* court made clear the affirmative sovereign duty to protect assets in the trust, declaring that "[t]he natural resources trust operates according to basic trust principles, which impose upon the trustee a fiduciary duty to 'protect the trust property against damage or destruction.'"[248] This duty, Judge Aiken emphasized, inures "equally to both current and future beneficiaries of the trust."[249] As Aiken explained, "The government, as trustee, has a fiduciary duty to protect the trust assets from damage so that current and future trust beneficiaries will be able to enjoy the benefits of the trust."[250] The

244. No. 14-2-25295-1 SEA, 2015 WL 7721362 (Wash. Super. Ct. Nov. 19, 2015).

245. *See id.* at *2, *4. The court used the link between navigable waters and the atmosphere to announce that "the State has a constitutional obligation to protect the public's interest in natural resources held in trust for the common benefit of the people of the State." *Id.* at *3.

246. Kanuk *ex rel.* Kanuk v. State, Dep't of Nat. Res., 335 P.3d 1088, 1101–02 (Alaska 2014) (recognizing that plaintiffs "do make a good case" when alleging that the atmosphere is inextricable linked to the entire ecosystem, and observing that climate change is already having an impact on well-recognized public trust resources like water, shorelines, and wildlife, suggesting that a potential trust violation exists where atmospheric pollution adversely affects trust resources like navigable and tidal waters).

247. *See infra* notes 377–89 and accompanying text (discussing the growing acceptance off foundational ATL principles by courts).

248. *Juliana*, 217 F. Supp. 3d at 1254 (citing GEORGE G. BOGERT ET AL., BOGERT'S TRUSTS AND TRUSTEES, § 582 (2016)). The courts' reliance on "basic trust principles" is important because trust law imposes basic duties to which statutory law, with narrow commands, may not speak. One example is the duty of loyalty. *See* Pa. Envtl. Rights Found. v. Commonwealth, 161 A.3d 911, 932 (Pa. 2017) (discussing the duty of loyalty imposed by the PTD); WOOD, NATURE'S TRUST, *supra* note 114, at 189–91 (explaining the duty of loyalty in the PTD as a trust for the benefit of all people, not for any one distinct beneficiary); *see also infra* notes 292–96 and accompanying text.

249. *Juliana*, 217 F. Supp. 3d at 1254.

250. *Id.*

court ruled that this trust duty was non-discretionary: "no government can legitimately abdicate its core sovereign powers."[251] Judge Aiken announced that the youth plaintiffs stated a valid PTD claim by asserting that the government "nominally retain[ed] control over trust assets while actually allowing their depletion and destruction" through marine acidification and rising sea levels and temperatures.[252] As explained below, if proved at trial, neglect of the affirmative duty to protect trust assets would be a PTD violation, and therefore a constitutional violation as well.[253]

C. The PTD as an Implicit Constitutional Right

Judge Aiken described the public trust, with origins antedating the Constitution, as part of the "inalienable [r]ights" that the people secured through the creation of government.[254] Explaining the social contract theory that influenced the founding generation, the court observed that "the Declaration of Independence and the Constitution did not *create* the rights to life, liberty, or the pursuit of happiness—the documents are, instead, vehicles for protecting and promoting those already-existing rights."[255] One of the powers that government cannot bargain away, she noted, is the "status of trustee pursuant to the public trust doctrine."[256] This public right was neither waivable nor conveyable.[257]

The court's recognition of the public trust as protecting inalienable, inherent rights reserved by citizens in the original creation of government paralleled the approach forged in two important public trust decisions, both cited by the *Juliana* court. The first was *Robinson Township v. Commonwealth*,[258] a 2013 plurality opinion of the Pennsylvania Supreme Court that defined public trust rights as "inherent and indefeasible" rights impliedly reserved by the citizens

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251. *Id.* at 1252.
252. *Id.* at 1254.
253. For discussion of the upcoming trial, see *infra* Part VI.
254. *Juliana*, 217 F. Supp. 3d. at 1260.
255. *Id.* at 1260–61.
256. *Id.* at 1261.
257. *See id.* ("Governments . . . possess certain powers that permit them to safeguard the rights of the people; these powers are inherent in the authority to govern and cannot be sold or bargained away. One example is the police power. Another is the status as trustee pursuant to the public trust doctrine."(citation omitted)).
258. 83 A.3d 901 (Pa. 2013).

when forming government.[259] The second was *Oposa v. Factoran*,[260] a 1993 opinion of the Philippines Supreme Court, declaring that "these basic rights need not even be written in the Constitution for they are assumed to exist from the inception of humankind."[261]

Building on the inalienable rights frame that preceded the *Juliana* case, Judge Aiken broke new ground by deciding that the PTD—although antedating the Constitution—was secured by and enforceable through the due process clause of the Fifth Amendment of the Constitution, which protects against the deprivation of life, liberty, and property from arbitrary federal or state governmental action.[262] Deciding that "public trust claims are properly categorized as substantive due process claims," the court looked to tests defining the scope of fundamental rights under the due process clause: such rights must be "implicit in the concept of ordered liberty" or "deeply rooted in this Nation's history and tradition."[263] The court concluded that "public trust rights, related as they are to inherent aspects of sovereignty and the consent of the governed from which the United States' authority derives, satisfy both tests."[264] Thus, the right to a stable climate system, implicit in due process, is a constitutionally protected right, a consequence of the government's dominion over trust resources like submerged lands and oceans.[265] Although the Fifth

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259. *See id.* at 947–48 (describing such rights as "of such 'general, great and essential' quality as to be ensconced as 'inviolate'"); *see also Juliana*, 217 F. Supp. 3d. at 1261 (citing *id.* at 948). This approach was recently affirmed by a majority of the Pennsylvania Supreme Court. Pa. Envtl. Def. Found. v. Commonwealth, 161 A.3d 911, 930–31 (Pa. 2017).

260. G.R. No. 101083, 224 S.C.R.A. 792, 804–05 (S.C. July 30, 1993) (Phil.).

261. *Juliana*, 217 F. Supp. 3d at 1261 (citing *Oposa*, 224 S.C.R.A. at 804–05).

262. *See id.* at 1248, 1261 (citing U.S. CONST. amend. V). The Fourteenth Amendment's due process clause, directed at the states, would presumably produce a similar result if a state's action threatened the youths' right to a healthful atmosphere. *See* Dusenbery v. United States, 534 U.S. 161, 167 (2002) (noting that Fourteenth and Fifth Amendments' due process tests are parallel). Therefore, the *Juliana* opinion's analysis should be useful to the state courts considering ATL claims. *See infra* Section VII.A (explaining state ATL litigation). The *Juliana* court recognized the case as part of a "wave of recent environmental cases asserting state and national governments have abdicated their responsibilities under the public trust doctrine." *Juliana*, 217 F. Supp. 3d at 1254.

263. *Juliana*, 217 F. Supp. 3d at 1261 (citing McDonald v. City of Chi., 561 U.S. 742, 761, 767 (2010)).

264. *Id.*

265. In this sense, the right to a stable climate system is similar to the public's right to use the New Jersey and Oregon beaches that are subject to public recreational use easements due to the public's ownership of tidelands. *See* Raleigh Ave. Beach Ass'n v. Atlantis Beach Club, Inc., 879 A.2d 112, 121 (N.J. 2005); State *ex rel.* Thornton v. Hay,

Amendment provided the plaintiffs' cause of action, Judge Aiken declared that since the PTD was not explicit in the due process clause, it fell within the scope of Ninth Amendment protection as well.[266]

D. The Federal Public Trust Doctrine

Because the public trust is an attribute of sovereignty, Judge Aiken concluded that the PTD burdened the federal government.[267] In doing so, she disagreed with the U.S. Court of Appeals for the District of Columbia Circuit, which ruled to the contrary in an unpublished and unreflective opinion rendered in an earlier federal ATL case, *Alec L. ex rel. Loorz v. McCarthy*.[268] Judge Aiken found the D.C. Circuit's reasoning unpersuasive, and for good reason. That decision seemed to over-read Justice Kennedy's statements about the PTD from a decision having nothing to do with the federal government.[269]

As Judge Aiken recognized, *PPL Montana, LLC v. Montana*[270] was not about the PTD at all.[271] Instead, it concerned the application of the equal footing doctrine to waterways in Montana.[272] In describing the equal footing doctrine, in a passing statement, Justice Kennedy distinguished it from the PTD, referring to the latter as a state-law doctrine.[273] Kennedy's dictum was not inaccurate, since the PTD has been largely interpreted by state courts. But the D.C. Circuit in its

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462 P.2d 671, 678 (Or. 1969). In both cases, the courts recognized ancillary public access rights necessary to protect the public's use of publicly owned tidelands.

266. *Juliana*, 217 F. Supp. 3d at 1261 (citing U.S. CONST. amend. IX) (stating that the enumeration of rights express in the Constitution's text "shall not be construed to deny or disparage others retained by the people").

267. *Id.* at 1259.

268. Alex L. *ex rel.* Loorz v. McCarthy, 561 F. App'x 7 (D.C. Cir. 2014) (per curiam); *see Juliana*, 217 F. Supp. 3d at 1258.

269. *Juliana*, 217 F. Supp. 3d at 1256, 1258 (describing the D.C. Circuit's reliance on a "passing statement" of Justice Kennedy in PPL Montana, LLC v. Montana, 565 U.S. 576 (2012), which Judge Aiken knew "was not a public trust case"). In a subsequent ruling in the *Juliana* case, Magistrate Coffin again analyzed the *PPL Montana* case, stating it had "no relevance to the issue presented in this action." *Juliana* Findings II, *supra* note 30, at 11; *see PPL Mont., LLC*, 565 U.S. at 604 (ruling that the Montana Supreme Court failed to employ the proper federal test for navigable waters implicitly conveyed at statehood from the federal to state governments under the equal footing doctrine because it did not employ the river segment test); *see also* Blumm & Schaffer, *supra* note 228, at 407–09) (discussing the *PPL Montana* decision).

270. 565 U.S. 576 (2012).

271. *Juliana*, 217 F. Supp. 3d at 1256, 1258.

272. *Id.* at 1256 (citing *PPL Mont., LLC*, 565 U.S. at 580).

273. *PPL Mont., LLC*, 576 U.S. at 604.

Alec L. decision invoked Kennedy's statement in a context not remotely similar to the riverbed ownership question at issue in *PPL Montana*, stretching it beyond bounds to address the federal government's obligations under the PTD. As Judge Aiken explained, the *Alec L.* court's unpublished approach was "not a plausible interpretation" because "*PPL Montana* said nothing at all about the viability of federal public trust claims with respect to federally-owned trust assets."[274]

Further, the *Alec L.* court's reliance on *PPL Montana*, unsupported by any reasoning, was flatly inconsistent with the Supreme Court's landmark PTD decision in *Illinois Central Railroad v. Illinois*. In *Illinois Central*, the Court recognized the PTD as an inherent limitation on the sovereignty of Illinois, deciding that the state legislature could not privatize the inner-harbor of Chicago to a railroad company.[275] *Illinois Central* is widely considered binding on the states (and therefore a reflection of federal law),[276] foreclosing wholesale privatization of public resources.[277] *Illinois Central* was *not* based on state law, despite

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274. *Juliana*, 217 F. Supp. 3d at 1257. In a later decision by Magistrate Coffin recognizing the federal public trust, the court aptly noted: "[T]his public trust over the navigable waters and riverbeds *passed to* the States to hold as the new sovereigns *from* the previous sovereign, the United States. The United States could not pass what it did not have. The public trust doctrine is rooted in our common law heritage and can be traced back millennia to ancient Roman times." *Juliana* Findings II, *supra* note 30, at 12. Moreover, as Magistrate Coffin noted, "The federal public trust doctrine may have been relatively dormant in federal courts since the [nineteenth] Century, but it has hardly been extinguished." *Id.* at 13.

275. Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 452–53 (1892) (explaining that the conveyance from the state to the railroad "would sanction the abdication of the general control of the state over lands under the navigable waters of an entire harbor or bay, or of a sea or a lake. Such abdication is not consistent with the exercise of that trust which requires the government of the state to preserve such waters for the use of the public. . . . The control of the state for the purposes of the trust can never be lost, except as to such parcels as are used in promoting the interest of the public therein, or can be disposed of without any substantial impairment of the public interest in the lands and waters remaining.").

276. Most states have interpreted *Illinois Central* to be binding on them, belying the claim that the decision was a product of state law. *See* Crystal S. Chase, *The* Illinois Central *Public Trust Doctrine and Federal Common Law: An Unconventional View*, 16 HASTINGS W. NW. J. ENVTL. L. & POL'Y 113, 150–53 (2010) (noting that of thirty-five state courts citing *Illinois Central*, twenty-nine considered it to be binding).

277. *Ill. Cent. R.R.*, 146 U.S. at 453 ("A grant of all the lands under navigable waters of a State has never been adjudged to be within the legislative power; and any attempted grant of the kind would be held, if not absolutely void on its face, as subject to revocation. The State can no more abdicate its trust over property in which the whole people are interested, like navigable waters and the soils under them, so as to leave them entirely under the use and control of private parties . . . than it can abdicate

erroneous dicta in some subsequent cases; it was instead a pronouncement of federal law.[278]

Judge Aiken recognized that no Supreme Court decision had denied the existence of the federal PTD, and, in fact, well-reasoned lower court opinions recognized a federal PTD.[279] Aiken explained that although the Supreme Court stated in its *Coeur d'Alene Tribe* decision that *Illinois Central* involved an interpretation of state law, that decision also recognized that the PTD's "central tenets . . . applied broadly."[280] Moreover, Judge Aiken pointed out that, despite the *PPL Montana* Court's statement that "the public trust doctrine remains a matter of state law," the Court proceeded to describe how the American PTD diverged from the English PTD.[281] This led Judge Aiken to state, "I can think of no reason why the public trust doctrine, which came to this country through the Roman and English roots of our civil law system, would apply to the states but not to the federal government."[282] Judge Aiken decided that, because the PTD is an inherent attribute of sovereignty, the federal sovereign is just as subject to the PTD as are the state sovereigns.[283]

E. The PTD and Congressional Displacement

The government argued in *Juliana* that the Clean Air Act ("CAA") displaced the federal public trust claim, relying on an earlier Supreme Court case, *American Electric Power Co. v. Connecticut*.[284] That decision concluded that the Clean Air Act displaced a federal common law

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its police powers in the administration of government and the preservation of the peace.").

278. The *Illinois Central* decision was, for example, later mischaracterized as a statement of Illinois law in Appleby v. City of N.Y., 271 U.S. 364, 393–95 (1926). The erroneous statement was dictum, as explained in Chase, *supra* note 276, at 147.

279. *See Juliana*, 217 F. Supp. 3d at 1258 (citing City of Alameda v. Todd Shipyards Corp., 635 F. Supp. 1447, 1450 (N.D. Cal. 1986); United States v. 1.58 Acres of Land, 523 F. Supp. 120, 124 (D. Mass. 1981)); *see also* Blumm & Schaffer, *supra* note 228, at 421–22 (explaining that the Supreme Court first recognized a federal PTD in the use of public coal fields in Colorado).

280. *See Juliana*, 217 F. Supp. 3d, at 1257 (citing Idaho v. Coeur d'Alene Tribe, 521 U.S. 261, 285 (1997)).

281. *Id.* at 1259 (quoting PPL Mont., LLC v. Montana, 565 U.S. 576, 603 (2012)).

282. *Id.* at 1257, 1259 ("There is no reason why the central tenets of *Illinois Central* should apply to another state, but not to the federal government.").

283. *Id.* at 1257; *see supra* note 276 and accompanying text (noting that most states have interpreted *Illinois Central* to be binding on them, thus contradicting the claim that the decision was a product of state law).

284. 564 U.S. 410 (2011).

nuisance claim brought against coal-fired plants for greenhouse gas pollution.[285] In the earlier federal ATL case, *Alec L.*, the government convinced the U.S. District Court for the District of Columbia that the CAA displaced the PTD under the *American Electric Power* holding.[286] But the *Alec L.* court made no inquiry into the differences between a common law nuisance claim against polluters that could be regulated under the CAA and a public trust claim brought by citizens against government actors which failed to fulfill their constitutional fiduciary duty to protect the trust resource.

In an extensive analysis, Judge Aiken contrasted the two types of claims and determined that the inalienable aspect of the PTD, established long ago in the Supreme Court's *Illinois Central* decision, was decisive.[287] Aiken recognized that the PTD—as an inherent limit on sovereignty and implicit in the Constitution's due process clause—imposed a non-displaceable obligation different from a federal common law nuisance claim.[288] Judge Aiken declared that "[p]ublic trust claims are unique because they concern inherent attributes of sovereignty. . . . A defining feature . . . is that it cannot be legislated away. Because of the nature of public trust claims, a displacement analysis simply does not apply."[289]

However prominent the displacement issue will be in the decision's appeal, if the Ninth Circuit recognizes the constitutional force of the public trust, the appeals court should categorically reject the displacement argument raised by the government. As the *American Electric Power* Court noted, displacement analysis applies to common law: "The test for whether congressional legislation excludes the declaration of federal common law is simply whether the statute 'speak[s] directly to [the] question' at issue."[290] However, the trust represents a constitutional limit on sovereign authority. Thus, the *American Electric Power* inquiry, which looked simply to what the statutes

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285. *Id.* at 424.

286. Alec L. v. Jackson, 863 F. Supp. 2d 11, 16 (D.D.C. 2012) (citing *Am. Elec. Power Co.*, 564 U.S. at 424), *aff'd sub nom.*, Alec L. *ex rel.* Loorz v. McCarthy, 561 F App'x 7 (D.C. Cir. 2014) (per curiam).

287. *Ill. Cent. R.R.*, 146 U.S. at 453 (declaring that a state may not "abdicate its trust over property in which the whole people are interested"); *see also Juliana*, 217 F. Supp. 3d at 1259–60.

288. *Juliana*, 217 F. Supp. 3d at 1261.

289. *Id.* at 1260.

290. *Am. Elec. Power Co.*, 564 U.S. at 424 (alteration in original) (quoting Mobil Oil Corp. v. Higginbotham, 436 U.S. 618, 625 (1978)).

address, is inappropriate in a constitutional context. For even when a government enacts laws to prevent harm to the assets held in trust, the basic trust question remains as to whether the laws are adequate, as implemented, to protect the natural asset for present and future generations.[291]

F. The PTD and the Federal Property Clause

The *Juliana* decision rejected the government's claim that a federal PTD was inconsistent with federal authority under the Constitution's Property Clause.[292] The Supreme Court has ruled numerous times that the scope of federal authority under that provision is "without limitations."[293] But, as Judge Aiken noted that the Court has qualified its broad pronouncement, stating that "the furthest reaches of the power granted by the Property Clause have not yet been definitively resolved."[294]

Judge Aiken characterized the "defining feature" of the PTD as the duty to protect the corpus of the trust, a duty which "cannot be

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291. It is nearly inconceivable that pollution regulation limiting emissions under the CAA could suffice to meet the public trust obligation. A sovereign would necessarily have to implement other types of policy to make the full transition from fossil fuels to renewable energy and to thereby achieve the de-carbonization necessary to stabilize the atmosphere, much less achieve the carbon drawdown called for by scientists. *See* Hansen et al., *Climate Prescription*, *supra* note 67, at 1 (advocating for policies that would spur technology development and create economic incentives for consumers and businesses toward energy conservation).

292. *Juliana*, 217 F. Supp. 3d at 1259; *see also* U.S. CONST. art. IV, § 3, cl. 2 ("Congress shall have Power to Dispose of and make all needful Rules respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so construed as to Prejudice any Claims of the United States, or of any particular State.").

293. *See, e.g.*, Kleppe v. New Mexico, 426 U.S. 529, 539 (1976) (quoting United States v. San Francisco, 310 U.S. 16, 29 (1940) (rejecting New Mexico's attempt to limit federal authority over wildlife on public lands)). Decisions dating back to 1840 uphold federal authority to manage and protect public lands and characterize the role of government in administering those lands as a public trustee. *See* Michael C. Blumm & Olivier Jamin, *The Property Clause and Its Discontents: Lessons from the Malheur Occupation*, 43 ECOLOGY L.Q. 781, 800 (2016) (noting that federal power over public lands is unaffected by statehood and explaining that Congress has near plenary authority to manage federal public lands). Decisions expressing broad, nearly unfettered federal power over public lands were typically in the context of challenges to the federal government's authority to protect such lands. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 135 (explaining that judicial deference to Congress in the public lands arena "does not at all sanction private use that destroys public assets," but instead recognizes the prerogative of Congress to choose between legitimate public uses of public land).

294. *Juliana*, 217 F. Supp. 3d at 1259 (quoting *Kleppe*, 426 U.S. at 539).

legislated away."[295] Thus, Aiken observed that the Court has never ruled that the federal government had authority under the Property Clause to "violate individual constitutional rights or run afoul of public trust obligations."[296] In other words, while the Property Clause may provide broad discretion for the federal trustee to choose between appropriate trust uses to benefit the public, it may not breach the trust by allowing wholesale impairment or destruction of the national wealth. Doing so would contravene the very purpose of the trust: to protect an endowment for present and future generations of the nation. The Property Clause authority—while expansive—is thus subject to constitutional rights, including the PTD.

VI. *JULIANA* AND THE ROAD AHEAD

Judge Aiken denied the federal government's and the industry intervenors' motions to dismiss. After discovery, the plaintiffs must prove that the federal government's past and ongoing actions and inactions violated their constitutional rights as articulated by Judge Aiken. The discussion below provides a roadmap of the steps ahead.

A. The Ongoing Case: "The Trial of the Millennium"

Judge Aiken's November 2016 decision set the stage for a trial on the merits as to whether the federal government's energy policies breached its constitutional duty to protect the due process, equal protection, and public trust rights of the youth plaintiffs to a stable climate system. A trial presenting such broad evidence—geared towards ascertaining whether there have been violations of fundamental rights—is quite unusual in federal environmental law, which typically concerns judicial review of specific agency rules or enforcement actions under statutory authority. Environmental law is largely about administrative law.[297] Environmental attorneys typically engage more in administrative and appellate practice, rather than lawyering in trial courts.[298]

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295. *Id.* at 1260.

296. *Id.* at 1259.

297. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 231 (describing how litigation of statutory claims focuses on the "administrative record").

298. *Id.* at 231–32. One exception concerns the alleged "take" of endangered species without authority granted by permits or take statements authorized by the Endangered Species Act (ESA). 16 U.S.C. § 1539 (2012). Proving an ESA "take" can require a fact-intensive trial.

The trial stage of the *Juliana* case will—for the first time—put U.S. federal fossil-fuel policy on trial and subject it to broad public scrutiny. This attention prompted the youths' attorneys to call this the "trial of the millennium."[299] Fossil-fuel practices have never been comprehensively assessed in terms of climate reality by the judiciary. Although some congressional hearings and media investigative reports have focused on discrete aspects of the government's fossil fuel policy,[300] a forum has never evaluated how U.S. fossil fuel policy in its totality measures up to the imperative of CO_2 reduction as illuminated by climate science.[301] The *Juliana* case provides the first opportunity to do so in a court of law. As Magistrate Coffin noted in his order recommending denial of the defendants' motion to certify an appeal in the case,

> Whether or not climate change is occurring, whether or not it is human-induced, and the degree of its severity and impact on the global climate, natural environment, and human health is quintessentially a subject of scientific study and methodology, not solely political debate. The judicial forum is particularly well-suited for the resolution of factual and expert scientific disputes. . . .[302]

Moreover, since *Juliana* was grounded in the Constitution, Congress may not—as it has done in the past with disputes based on statutes—make the case disappear by dictating the result.[303]

During the forthcoming trial, federal lawyers may try to downplay climate dangers and obfuscate climate science. But unlike political forums, a court offers a deliberative fact-finding forum subject to the rules of evidence, so strategies of "manufacturing doubt" (or facts) may be less effective in the courtroom.[304] Government evidence will not

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299. *See* Coco McPherson, *Why Young Americans Are Suing Obama over Climate Change*, ROLLING STONE (Mar. 12, 2016), http://www.rollingstone.com/politics/news/why-young-americans-are-suing-obama-over-climate-change-20160312 (quoting attorney Julia Olson) (explaining that at trial experts will testify to the true nature of climate change outside of the political fray).

300. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 12–23.

301. Maria L. Banda & Scott Fulton, *Litigating Climate Change in National Courts: Recent Trends and Developments in Global Climate Law*, 47 ENVTL. L. REP. NEWS & ANALYSIS 10121, 10126 (2017) (explaining that *Juliana* represents the most complete treatment of climate change litigation in the United States).

302. *Juliana* Findings II, *supra* note 30, at 8–9 (citation omitted).

303. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 106–07 (discussing the use of appropriation riders waiving statutory obligations of environmental laws).

304. For a discussion of the fossil-fuel industry's campaign of "manufacturing doubt" within the political sphere, see generally NAOMI ORESKES & ERIK M. CONWAY, MERCHANTS OF DOUBT (2010), comparing the fossil-fuel industry's efforts to those of the tobacco industry's denial of the risks of smoking.

receive the kind of judicial deference that it enjoys in administrative law cases challenging rules that are subject to notice-and-comment rulemaking.[305] Instead, the government must carry the same burden of persuasion imposed on all civil litigants.[306]

1. The Focus of Discovery in *Juliana*

At the time of this Article's publication, a temporary stay issued by a Ninth Circuit motions panel delayed the discovery process. The focus of discovery and trial in the *Juliana* case will mirror the elements of the plaintiffs' claims. The public trust claim is rather straightforward, requiring evidence that the government, as trustee, allowed "substantial impairment" of crucial trust resources.[307] A plethora of existing climate studies likely satisfy that basic threshold.[308] Because the *Juliana* opinion focused on the ocean and shoreline environment as a trust resource, fact-finding will undoubtedly explore, at the least, the relationship between GHG emissions and ocean acidification, the effects of ocean acidification and rising temperatures on marine life, and the effect of rising global temperatures on sea levels.

The district court distilled the constitutional claims into one question: whether the government's fossil fuel policies violated the youth's fundamental due process rights to life, liberty, and property.[309] The plaintiffs will certainly present evidence showing that government

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305. *See* Chevron U.S.A. Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 843–44 (1984) (explaining that administrative authority necessarily requires agencies to formulate policy by interpreting enabling statutes, and that courts should defer to an agency's reasonable interpretation when authority is implicitly or explicitly delegated to the agency).

306. That burden generally requires a preponderance of the evidence. *See, e.g.*, Price Waterhouse v. Hopkins, 490 U.S. 228, 253 (1989) (plurality opinion) (explaining that "parties to civil litigation need only prove their case by a preponderance of the evidence"), *superseded by statute*, Civil Rights Act of 1991, Pub. L. No. 102-166, 105 Stat. 1075, *as recognized in* Burrage v. United States, 134 S. Ct. 881 (2014).

307. *See supra* note 275 and accompanying text; *see also* Ill. Cent. R.R. v. Illinois, 146 U.S. 387, 435 (1892) (explaining that the government can use or dispose of lands held in trust for the public "when that can be done without substantial impairment of [the public's] interest"). For discussion of "substantial impairment" in the *Juliana* case, see *Juliana* Findings I, *supra* note 117, at 1.

308. *See, e.g.*, *Juliana* Complaint, *supra* note 30, at 51–56 (summarizing several federal government and private studies as early as the 1960's that found CO_2 increases to be damaging to the environment); Hansen et al., *Climate Prescription*, *supra* note 67, at 17 (studying the connection between fossil fuel CO_2 emissions and global warming).

309. *See supra* note 185–89 and accompanying text.

actors placed them (and their generation) in danger, or enhanced a position of danger, acting with "deliberate indifference to their safety."[310] As Judge Aiken wrote, "Deliberate indifference requires creation of a dangerous situation with actual knowledge or willful ignorance of impending harm."[311]

The evidence concerning the constitutional claims will focus on (1) the government's knowledge of the climate danger and (2) its response to and perpetuation of that danger by continuing to promote fossil fuels.[312] As to the first, numerous public reports referenced in the plaintiffs' complaint and subsequent briefing show consistent warnings from climate scientists and agency staff to government leaders over the past several decades.[313] This climate-science inquiry is likely to explore the gravity and extent of the risk to young people and future generations, the tipping points and climate thresholds, and projections for the future.

As to the second issue, there are two aspects of the government's fossil fuel policy to be addressed at trial, described by plaintiffs' counsel in oral argument as two sides of the same coin: (1) the regulation side and (2) the production side.[314] The regulation side involves the failure to regulate CO_2 emissions.[315] The production side involves affirmative government steps to authorize and promote fossil fuel production and consumption. The complaint detailed a myriad of actions taken over the decades "in the areas of fossil fuel extraction, production, transportation, importation and exportation, and consumption" that

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310. *See* Juliana v. United States, 217 F. Supp. 3d 1224, 1251 (D. Or. 2016) (quoting Penilla v. City of Huntington Park, 115 F.3d 707, 709 (9th Cir. 1997) (per curiam)).

311. *Id.* at 1271–72 ("Plaintiffs' allege that the defendants' action in this case has created a life-threatening situation and that defendants have willfully ignored long-standing and overwhelming scientific evidence of that impending harm to the young and future generations.").

312. Magistrate Coffin highlighted some of the numerous factual questions to be addressed at trial in his opinion recommending denial of the motion to certify the appeal. *Juliana* Findings II, *supra* note 30, at 15. Two of several questions he articulated were: (1) "Have the federal defendants deliberately chosen to encourage and promote fossil fuel production with knowledge of the dangers created by those policies?" and (2) "Are the federal defendants' actions a substantial cause of the alleged injuries to plaintiffs?" *Id.*

313. *See Juliana* Complaint, *supra* note 30, at 51–56.

314. Reporter's Transcript of Proceedings at 44–45, *Juliana*, 217 F. Supp. at 1224 (No. 6:15-cv-01517-TC), ECF No. 82.

315. *See* Massachusetts v. Envtl. Prot. Agency, 549 U.S. 497, 510 (2007) (discussing the government's initial resistance to making an endangerment finding from CO_2 emissions that would trigger Clean Air Act regulation).

cause dangerous cumulative atmospheric CO_2 concentrations.[316] Those accumulations disrupt the climate system, threatening "irreversible harm to the natural systems critical to Plaintiffs' rights to life, liberty, and property."[317]

Days before President Obama left office, and over a year after the case was filed, the federal defendants submitted an answer to the plaintiffs' complaint.[318] The answer included several significant admissions that may make it difficult for Trump Administration lawyers to contest many of the factual assertions in the complaint. The government acknowledged that the use of fossil fuels contributes CO_2 emissions,[319] "placing our nation on an increasingly costly, insecure and environmentally dangerous path."[320] The government also admitted that, for over fifty years, some officials in the federal government were aware of the growing body of climate research showing the potential danger from rising CO_2 levels.[321] Further, the government conceded that federal policies have contributed to present CO_2 levels, which "threaten the public health and welfare of current and future generations."[322] The Trump Administration lawyers could offer an amended answer disputing the climate science but, as Professor Michael Burger has observed, "The last thing a Trump Administration [D]epartment of [J]ustice actually wants is to have the science of climate change go on trial."[323]

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316. *Juliana* Complaint, *supra* note 30, at 93.

317. *See id.* at 91, 93 ("After placing Plaintiffs in a position of climate danger, Defendants have continued to act with deliberate indifference to the known danger they helped create and enhance.").

318. *See* Federal Defendants' Answer to First Amended Complaint for Declaratory and Injunctive Relief, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 98 [hereinafter Federal Defendants' Answer].

319. *Id.* at 35. The federal defendants' answer to paragraph 150 of the *Juliana* Complaint stated: "Federal Defendants admit the allegations in this paragraph." *Id.*

320. *Juliana* Complaint, *supra* note 30, para. 150, at 60.

321. Federal Defendants' Answer at 2, *supra* note 318.

322. *Id.* at 47; *see* Megan Darby, *Obama Ties Trump Admin into Accepting CO2 Dangers*, CLIMATE CHANGE NEWS (Jan. 19, 2017, 4:04 PM), http://www.climatechangenews.com/2017/01/19/obama-ties-trump-admin-into-accepting-co2-dangers (reporting that the Obama administration endorsed the *Juliana* plaintiffs' scientific claims); Emily Hoard, *Federal Defendants Admit to Several Allegations of Youth Climate Lawsuit*, NEWS-REV. (Jan. 19, 2017), http://www.nrtoday.com/news/environment/federal-defendants-admit-to-several-allegations-of-youth-climate-lawsuit/article_55fe66da-6d35-5394-9081-398d19cbf0ea.html (opining that the government's Answer may serve as validation of the *Juliana* case merits).

323. *See* Darby, *supra* note 322.

In addition to evidence supporting the substantive due process, equal protection, and public trust claims, the plaintiffs must present facts supporting standing, showing causation between the government's conduct and their injuries.[324] Judge Aiken noted that, although "[e]ach link in these causal chains may be difficult to prove," that difficulty did not make the case non-justiciable at the pleading stage of the litigation.[325] The plaintiffs must also demonstrate redressability, namely, a "substantial likelihood" that a court remedy would address their injuries.[326] The questions framed by the court included: (1) what part of the youth plaintiffs' injuries are attributable to emissions beyond the government's control; (2) despite such emissions, would the plaintiffs' injuries be reduced if they obtained judicial relief; and (3) when will the world reach the climate-change tipping point of no return when irreversible consequences are inevitable, and could the defendants avoid that tipping point without cooperation from third parties?[327]

2. The Industry on Trial

Although the federal government's answer to the plaintiffs' complaint contained potentially significant admissions, certain aspects of the climate science and government response to climate change will proceed to trial. A judicially-supervised fact-finding process could have important ramifications outside of the case.[328] The prospect of discovery in *Juliana* was intriguing from the outset because of the status of the fossil-fuel industry as an intervenor-defendant party.[329] This intervenor status subjected the industry to discovery requests,[330] creating opportunities for the plaintiffs' attorneys to explore the longstanding, but largely surreptitious, relationship between the government and the

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324. *See supra* notes 181–83 and accompanying text.

325. *See* Juliana v. United States, 217 F. Supp. 3d 1224, 1246 (D. Or. 2016).

326. *Id.* at 1247. ("If plaintiffs can show, as they have alleged, that defendants have control over a quarter of the planet's greenhouse gas emission, and that a reduction in those emissions would reduce atmospheric CO_2 and slow climate change, then plaintiffs' requested relief would redress their injuries.").

327. *See id.* (noting that none of these questions could be answered at the motion to dismiss stage).

328. *See infra* Section VI.B.

329. *See* Motion to Intervene, at 2, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), ECF No. 14.

330. *See* FED. R. CIV. P. 16, 26(b) (stating that under the federal rules of civil procedure, an intervenor becomes a party to the case, and thus becomes subject to rule 16 governing discovery among parties).

fossil fuel industry.[331] When the industry intervenors moved to withdraw from the case in May 2017 they were facing the prospect of probing requests for admissions and other discovery requests.[332] Although the scope of discovery may narrow in light of the interveners' exit from the case,[333] the process still leaves the industry exposed to the possibility of damaging evidence coming to light.

One aspect of discovery will concern the relationship between the industry and government officials, and whether those officials and their agencies acted in a self-serving manner to extend favoritism to the industry's goal of fossil-fuel promotion over the public they are constitutionally bound to represent. The answer to that question could have enormous implications not only as evidence for the constitutional claims—perhaps by explaining the intent of government officials to pursue what they seemingly knew was a dangerous energy policy—but it also may enhance the public trust claim. Any trust requires a fiduciary trustee to exercise a duty of loyalty towards the beneficiaries, which, in the case of a public trust, are

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331. Notably, just after a pre-trial conference with Magistrate Coffin, the plaintiffs' attorneys gave notice of a deposition for Rex Tillerson, the former CEO of ExxonMobil who became Secretary of State for the Trump Administration. *See* Plaintiffs' Notice of Deposition of Rex Tillerson, *Juliana*, 217 F. Supp. 3d 1224 (No. 6:15-cv-01517-TC), https://static1.squarespace.com/static/571d109b04426270152febe0/t/58645e359f74562190fa14f2/1482972726374/2016-12-28+Notice+of+Depo+Tillerson.pdf (requesting testimony of Rex Tillerson, Secretary of State-designate and former CEO of ExxonMobil). At the time of the filing of the *Juliana* case, Tillerson was president of the board of directors of the American Petroleum Institute, an industry intervenor in the case. His appointment as Secretary of State (a defendant agency in the *Juliana* case) carried the highly unusual consequence of a prominent intervenor figure becoming a lead government agency defendant. *See* Dana Varinsky, *Trump's Secretary of State Nominee May Have to Testify in a Landmark Climate Lawsuit the Day Before Inauguration*, BUS. INSIDER (Jan. 13, 2017, 11:15 AM), http://www.businessinsider.com/tillerson-kids-climate-lawsuit-deposition-2017-1. Julia Olson, plaintiffs' attorney, claimed that the Tillerson appointment "very clearly demonstrates . . . that the United States government and the fossil fuel industry have worked together to keep a fossil-fuel-based energy system in place, and that has caused climate change and has threatened the lives of these plaintiffs and future generations and resulted in constitutional violations." *Id.*

332. *See supra* note 139 (discussing the intervenors' desire to withdraw from the *Juliana* case).

333. *See* Letter from U.S. Dist. Court Judge Ann Aiken & U.S. Magistrate Judge Thomas Coffin, *supra* note 143 (noting, "The intervenors' exit from the case should pave the way for plaintiffs to winnow their discovery requests substantially"). Even absent the intervenors, the plaintiffs' attorneys may examine government documents for evidence of government-industry collusion.

present and future citizens.[334] The trust requires avoidance of any conflict of interest—indeed, in Justice Cardozo's famous words, "the punctilio of an honor the most sensitive."[335]

Policies favoring the industry while harming the citizen beneficiaries would not augur well for the government defendants. Although breach of the duty of loyalty is not a necessary element of plaintiff's public trust claim,[336] a breach would fall within the complaint's allegation that "[d]efendants have failed in their duty of care to safeguard the interests of Plaintiffs as the present and future beneficiaries of the public trust."[337] The broad sweep of that claim appears to warrant a probing inquiry as to whether industry influence over government decision makers tainted the decision making process. Thus, although the industry interveners withdrew from the case, the relationship between the fossil-fuel industry and government may be

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334. *See* Robinson Twp. v. Commonwealth, 83 A.3d 901, 957 (Pa. 2013) (explaining that the fiduciary duties of the state of Pennsylvania under the public trust include a duty to protect natural resources). A recent decision by the Pennsylvania Supreme Court underscored the duty of loyalty in the public trust context, making clear that this basic fiduciary duty applies to all governmental officials managing public trust property. Pa. Envtl. Def. Found. v. Commonwealth, 161 A.3d 911, 932 (Pa. 2017) ("The duty of loyalty imposes an obligation to manage the corpus of the trust so as to accomplish the trust's purposes for the benefit of the trust's beneficiaries."). The Pennsylvania court made clear that the duty applies to all three branches of government. *See id.* at 932 n.23 ("Trustee obligations are not vested exclusively in any single branch of Pennsylvania's government, and instead all agencies and entities of the Commonwealth government, both statewide and local, have a fiduciary duty to act toward the corpus with prudence, loyalty, and impartiality.").

335. Meinhard v. Salmon, 164 N.E. 545, 546 (N.Y. 1928).

336. The public trust principle gives rise to both substantive and procedural fiduciary duties. *See* DOUGLAS QUIRKE, THE PUBLIC TRUST DOCTRINE: A PRIMER 12 (2016), https://law.uoregon.edu/images/uploads/entries/PTD_primer_7-27-15_EK_revision.pdf (discussing the government trustees' five substantive duties and five procedural duties); *see also* Mary Christina Wood & Gordon Levitt, *The Public Trust Doctrine in Environmental Decision Making*, *in* ENVIRONMENTAL DECISION MAKING IN ENVIRONMENTAL LAW 73 (2016) (explaining substantive and procedural fiduciary duties of trustees). Plaintiffs' substantive public trust claim rests on the government's fiduciary duty to protect and restore the atmosphere, a contention that does not depend on willfulness, intent, or bias. Instead, it rests on the evidence that the atmosphere has been "substantially impaired," partially as a result of government's actions in promoting fossil fuel production. However, the *Juliana* complaint was crafted broadly enough to allow evidence of a violation of the trustees' procedural duty of loyalty to citizens. This duty requires avoidance of conflicts that could create bias in decision making.

337. *Juliana* Complaint, *supra* note 30, at 94.

subject to discovery, making the industry vulnerable in a number of ways discussed below.

B. Ripple Effects Across the Legal and Social Landscape

Although there will likely be an appellate stage to the *Juliana* litigation in the Ninth Circuit, and perhaps the U.S. Supreme Court, the more immediate discovery and fact-finding stage of the case at trial could have dramatic ramifications both within and outside the legal field. Within the legal field, the climate science-fact finding may influence other ATL cases in other jurisdictions, both in the United States and abroad. Because *Juliana* is part of a coordinated litigation campaign, with a number of cases pending throughout the nation and the world,[338] facts established at trial and reflected in a *Juliana* opinion could be accepted by other ATL courts without duplicative fact-finding proceedings.

The case could have far-reaching effects on other non-ATL litigation as well. Potential evidence indicating that fossil-fuel companies knew of the mounting climate danger and continued their operations despite this knowledge—and any evidence that they in fact tried to obfuscate the climate danger in various fora[339]—could affect pending investigations launched by state attorneys general in New York and California that probe potential violations of securities laws.[340] Moreover, the Massachusetts Attorney General recently sued ExxonMobil, alleging violations of state consumer protection law.[341]

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338. *See infra* Part VII.

339. A rich platform for this kind of evidence has already been developed. *See generally* ORESKES & CONWAY, *supra* note 304 (telling the story of scientists and scientific advisors who misled the public and denied well-established scientific knowledge for four decades).

340. *See* Diane Cardwell & John Schwartz, *Exxon Emissions Costs Accounting "May Be a Sham," New York State Says*, N.Y. TIMES (June 2, 2017), https://www.nytimes.com/2017/06/02/business/energy-environment/exxon-mobil-climate-change-lawsuit.html (discussing charges brought by the New York attorney general, alleging that Exxon Mobil defrauded investors and overstated its value by claiming, but failing, to take into account carbon pollution costs in investment decisions); Ivan Penn, *California to Investigate Whether Exxon Mobil Lied about Climate-Change Risks*, L.A. TIMES (Jan. 20, 2016, 3:00 AM), http://www.latimes.com/business/la-fi-exxon-global-warming-20160120-story.html (reporting that the California attorney general began investigating Exxon Mobil for lying to shareholders and the public about the link between climate change and its products).

341. For discussion of the Massachusetts litigation, see Marilyn Schairer, *Mass. Scored a Victory in its Exxon Lawsuit. What's Next?*, WGBH NEWS (Jan. 18, 2017), http://news.wgbh.org/2017/01/18/local-news/mass-scored-victory-its-exxon-lawsuit-whats-next (alleging that the company failed to disclose relevant information on the effect its products would have on the planet's climate system).

Possible evidence of fossil-fuel industry collusion with the government could spur new criminal investigations on the state level, even at the federal level, and perhaps in other nations as well. As Denis Binder has explained, "Criminal liability has become a global reality," particularly in response to disasters such as oil spills, explosions, and other pollution disasters.[342]

Moreover, evidence of an industry-government alliance could fortify a necessity defense raised by citizen defendants facing charges of non-violent civil disobedience after taking direct action to stop the flow of oil. The necessity defense requires a showing that the defendants lacked recourse to stop the climate harm using traditional legal avenues[343]—a showing that would be advanced through any evidence of government-industry collusion. The defense is being used in the "Delta Five" case now pending in the Washington Court of Appeals. That case arose out of a citizen blockade on train tracks used by oil trains. An amicus party, the Climate Defense Project, submitted a brief in support of the necessity defense, arguing that the citizens' civil disobedience was a necessary response to the state of Washington's alleged violation of its constitutional public trust duty to protect the atmosphere and a healthy climate system.[344]

Beyond its legal ramifications, the *Juliana* case could spur greater and more widespread climate awareness among the public. At a time when the Trump Administration promotes climate denial,[345] the case has galvanized national and international press attention, and the trial is likely to be widely covered by the press. If the plaintiffs present

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342. *See* Denis Binder, *Criminal Law—The Increasing Application of Criminal Law in Disasters and Tragedies: A Global Phenomenon*, 38 W. NEW ENG. L. REV. 313, 313 (2016) (discussing the emergence of criminal liability for environmental law and its applicability to corporations).

343. *See* United States v. Meraz-Valeta, 26 F.3d 992, 995 (10th Cir. 1994) (stating that the necessity defense requires a showing that no other reasonable, legal alternatives were available), *rev'd on other grounds by* United States v. Aguirre-Tello, 353 F.3d 1199, 1207–08 (10th Cir. 2004).

344. Amicus Curiae Brief of Climate Defense Project in Support of Defendants' Motion for Discretionary Review, State v. Brockway, No. 16-1-00005-8 (Wash. Ct. App. Feb. 14, 2017), https://climatedefenseproject.org/wp-content/uploads/2017/02/CDP-Amicus-Brief-State-v.-Brockway.pdf.

345. On March 9, 2017, EPA head Scott Pruitt questioned the human role in climate change, sparking widespread citizen criticism. *See, e.g.*, *EPA's Scott Pruitt Denies Climate Change Science and Angry Americans are Flooding Him with Phone Calls*, CHI. TRIB. (Mar. 10, 2017), http://www.chicagotribune.com/news/nationworld/politics/ct-scott-pruitt-climate-chancge20170310-story.html (detailing the negative public reaction to Pruitt's comments on climate change).

evidence of collusion between the fossil fuel industry and government in the face of knowledge of mounting danger to children, the court of public opinion could react in a way that deters fossil-fuel investors, increases the hostility of consumers to energy companies, and inspires widespread resistance to continued fossil-fuel development worldwide. As columnist Dan Kahle wrote about the case, "When the future speaks for itself, we can't bear not to listen."[346]

C. The Remedy

In their complaint, the *Juliana* plaintiffs asked for a plan to (1) decarbonize the United States infrastructure at a rate that meets the pace set by the best available science, as currently captured in the Hansen prescription described in Part I[347] and (2) a plan to achieve drawdown of excess atmospheric carbon.[348] These measures, necessary to restore the planet's CO_2 levels to below 350 ppm, are characteristic of "structural injunctions" that other courts ordered in various instances of institutional malfeasance or recalcitrance.[349] In his denial of the federal defendants' motion to certify an appeal, Magistrate Coffin emphasized the remedial power of the court, noting that "the court has broad discretion in fashioning equitable relief (if appropriate) in this lawsuit that are manageable and within the judicial role envisioned by Article III of the Constitution."[350] Structural remedies require, at their core, an enforceable, judicially supervised plan. Citing precedents from the prison and civil rights institutional litigation, Magistrate Coffin stated:

> Thus, the court, in fashioning equitable relief in this action should the plaintiffs prevail, need not micro manage federal agencies or make policy judgments that the Constitution leaves to the other branches. The court may make findings that define the contours of

346. Don Kahle, *Youths' Climate Lawsuit Could Have Lasting Impact*, REGISTER-GUARD (Jan. 20, 2017), http://registerguard.com/rg/opinion/35194101-78/youths-climate-lawsuit-could-have-lasting-impact.html.csp.

347. *See supra* notes 16–18 and accompanying text.

348. *Juliana* Complaint, *supra* note 30, at 80–81, 96.

349. *See infra* note 351.

350. *Juliana* Findings II, *supra* note 30, at 7. In their letter to the Ninth Circuit motions panel, Judge Aiken and Magistrate Coffin noted their intention to bifurcate the liability and remedy portions of the trial. *See* Letter from U.S. Dist. Court Judge Ann Aiken & U.S. Magistrate Judge Thomas Coffin, *supra* note 143 ("This bifurcated approach will permit counsel and the Court to first concentrate on the factual complexity of the liability phase, then turn to the difficult separation of powers questions that would be posed should this case proceed to the remedy phase.").

> plaintiffs' constitutional rights to life and a habitable atmosphere and climate, declare the levels of atmospheric CO_2s which will violate their rights, determine whether certain government actions in the past and now have and are contributing to or causing the constitutional harm to plaintiffs, and *direct the federal defendants to prepare and implement a national plan which would stabilize the climate system and remedy the violation of plaintiff's rights.*[351]

Even as discovery and trial proceed, the Trump Administration is likely to approve extraction and development of American fossil fuels as rapidly as necessary. For example, on February 7, 2017, the U.S. Army Corps of Engineers abruptly terminated the environmental review process for the controversial Dakota Access Pipeline and granted the easement, allowing completion of the oil pipeline.[352] Because analysts project that continued production from currently operating oil and gas fields around the world will push the planet to 1.5 degrees Celsius over preindustrial temperatures[353]—beyond the aspirational limit set by the global Paris climate agreement[354]—there appears to be an immediate need for so-called "backstop injunctions" to protect the status quo for the duration of the lawsuit. Such an injunction could restrict fossil-fuel development in new areas or limit

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351. *Juliana* Findings II, *supra* note 30, at 8 (emphasis added); *see also id.* at 9 (noting the "trial court[] [has the] ability to fashion reasonable remedies based on the evidence and findings after trial"). These defined parameters of the court's role are important in overcoming judicial inertia and in proscribing a definitive benchmark for the political branches to achieve. A court-ordered directive to the government seems a necessity, especially considering the increasing doubts as to just how compliant the Trump Administration would be in developing a national remedial plan for the climate system. Recalcitrance that would cause delay and further damage to the climate system may foreclose options of recovery altogether, leaving the world to slide beyond tipping points. Courts can rely on and take guidance from plans prepared by independent experts. *See* MARY CHRISTIAN WOOD ET AL., PROSPECTUS FOR AN ATMOSPHERIC RECOVERY INSTITUTE 1 (Apr. 25, 2017), https://law.uoregon.edu/images/uploads/entries/Prospectus_for_an_Atmospheric_Recovery_Institute_.pdf (providing a plan for an Atmospheric Recovery Institute to restore the Earth's atmosphere to a stable equilibrium of 350 ppm).

352. *Army Corps of Engineers Grants Easement for Dakota Access Pipeline*, NPR (Feb. 7, 2017, 4:29 PM), http://www.npr.org/2017/02/07/513957885/army-corps-of-engineers-grants-easement-for-dakota-access-pipeline.

353. *See* MUTTITT, *supra* note 97, at 5 (examining the implications of further fossil fuel production on climate and exploring solutions).

354. *See supra* note 63 and accompanying text (discussing the goals of the Paris climate agreement).

the expansion of existing projects.[355] A court's role in this regard might be similar to the role of district courts responding to the Trump immigration order, which was challenged as unconstitutional.[356] In *Darweesh v. Trump*,[357] for example, the U.S. District Court for the Eastern District of New York issued a nationwide injunction against enforcement of the Trump order only days after its issuance.[358]

Clearly, the *Juliana* case has enormous freight to carry. But given the Trump Administration's declared intentions to ramp up fossil-fuel production and consumption,[359] there appears to be little in the way of viable alternatives to force rapid reduction of greenhouse gas pollution.[360] Part VII below positions the *Juliana* case in the context of

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355. After President Trump was elected, but before he took office, President Obama had a unique opportunity to solidify some of his late-term actions disapproving fossil-fuel production by entering into a partial consent decree in the *Juliana* case. *See* Wood, Woodward, & Blumm, *supra* note 34. Despite persistent requests to do so by youth plaintiffs, the Obama Justice Department refused to pursue settlement options. *See* Alliance for Climate Education/Our Children's Trust, *President Obama: Our Future Is on the Line*, WASH. POST (Dec. 2, 2016, 12:00 PM), https://www.washingtonpost.com/video/national/president-obama-our-future-is-on-the-line/2016/12/02/8765535e-b8b1-11e6-939c-91749443c5e5_video.html (displaying the children plaintiffs lobbying the President to "stand with youth"). The lack of transparency shrouding the Justice Department makes it is difficult to know whether the highest officials in the Obama administration were ever even appraised of the opportunity to enter into a partial consent decree, or whether Justice attorneys were acting on their own without direction from the Obama White House—a problematic possibility. The attorney ethics surrounding Department of Justice decisions on settlement opportunities is worthy of examination but are beyond the scope of this Article.

356. *See supra* notes 168–71 and accompanying text.

357. No. 17 Civ. 480 (AMD), 2017 WL 388504 (E.D.N.Y. Jan. 28, 2017).

358. *Id.* at *2; Michael D. Shear et al., *Judge Blocks Trump Order on Refugees amid Chaos and Outcry Worldwide*, N.Y. TIMES (Jan. 28, 2017), https://www.nytimes.com/2017/01/28/us/refugees-detained-at-us-airports-prompting-legal-challenges-to-trumps-immigration-order.html.

359. *See supra* notes 8–13 and accompanying text.

360. As the court in the Washington ATL case, *Foster v. Wash. Dep't of Ecology*, recently noted in a procedural order, "This Court takes judicial notice of the fact that federal mechanisms designed to protect the environment are now under siege, more than ever leaving to the States the obligation to protect their citizens under the Public Trust Doctrine." Order Granting Petitioners' Motion for Leave to File Supplemental Brief and Amended Pleading and Granting RAP 7.2(e) Leave to Seek Permission of Court of Appeals for Formal Entry of this Order at 4, Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362 (Wash. Super. Ct. Nov. 19, 2015). As noted earlier in this Article, climate recovery will also require massive drawdown of excess CO_2 in the atmosphere. *See supra* notes 67–71. A litigation approach to recover natural resource damages ("NRD") from the carbon majors (fossil-fuel companies) to fund a global restoration effort aimed towards natural drawdown was suggested in Mary

the atmospheric trust litigation campaign advancing steadily in the United States and abroad.

VII. ATMOSPHERIC TRUST AND PTD LITIGATION WORLDWIDE

Juliana is part of a series of cases being filed by youth plaintiffs worldwide against governments, collectively referred to as atmospheric trust litigation.[361] ATL cases seek to apply the fundamental public trust duty of protection to the atmosphere to abate continued damage from GHG pollution and restore climate balance.[362] This Part first considers the state litigation. Second, it examines some of the cases abroad.

A. State Atmospheric Trust Litigation

ATL cases must progress through three stages to prove effective. First, the court must recognize its role in upholding the rights of the plaintiffs and rule against the government's procedural defenses designed to keep the case out of court—defenses such as standing, political question, and displacement.[363] Second, the court must issue declarations of principle providing a guide for government action and a framework for the remedy.[364] Third, the court must manage the remedy so that it offers a practical means to enforce the rights of the plaintiffs.[365] Although state court ATL decisions are not binding on other states, they can be influential.

Christina Wood & Dan Galpern, *Atmospheric Recovery Litigation: Making the Fossil Fuel Industry Pay to Restore a Viable Climate System*, 45 ENVTL. L. 259, 260 (2015). This NRD litigation would be brought by sovereign trustees (states, tribes, or foreign nations) against fossil-fuel defendants.

361. *See* Wood & Galpern, *supra* note 360, at 263 (discussing the atmospheric trust litigation campaign); *see also* WOOD, NATURE'S TRUST, *supra* note 114, at 220–21. Atmospheric Trust Litigation is an approach to the climate crisis conceived and described in *Atmospheric Trust Litigation Around the World* by Mary Christina Wood. *See* Wood, *ATL chapter*, *supra* note 100, at 220.

362. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 220–29.

363. *Compare Juliana* Findings II, *supra* note 30, at 14 (underscoring Magistrate Coffin's reiteration that it would be irrational not to find that the plaintiffs have standing) *with* Alec L. v. Jackson, 863 F. Supp. 2d 11, 15 (D.D.C. 2012) (finding that the plaintiffs lacked standing to pursue an atmospheric trust claim against the federal government because the public trust doctrine was only a state-law doctrine), *aff'd*, 561 F. App'x 7 (D.C. Cir. 2014) (per curiam).

364. *See supra* note 167 and accompanying text.

365. *See supra* note 116 and accompanying text.

1. Overcoming judicial inertia

Public trust cases call on the judiciary to evaluate the performance of other branches of government in fulfilling the fiduciary obligations they owe to the people. As the Hawaii Supreme Court stated in a leading public trust case, "The check and balance of judicial review provides a level of protection against improvident dissipation of an irreplaceable res."[366] In the context of the ATL campaign, the early cases demonstrated that some courts were uncomfortable with a role in the climate crisis, particularly in light of the complex regulatory schemes available to the agencies to regulate greenhouse gas pollution. As a result, several earlier decisions were dismissed on displacement, preemption, or political question grounds.[367] As the *Alec L.* court claimed, agencies are allegedly "better equipped" than courts to handle GHG pollution.[368]

These early decisions placed unwarranted confidence in the political branches of government to prevent runaway planetary heating.[369] They succumbed—as did several notable climate tort cases before them—to the so-called judicial "nihilism" identified by Professor Douglas Kysar: "[d]enying [their] own expansive power, [these courts] cowered before catastrophe."[370] Perhaps spurred by growing

366. *In re* Water Use Permit Applications, 9 P.3d 409, 455 (Haw. 2000); *see also* Lake Mich. Fed'n v. U.S. Army Corps of Eng'rs, 742 F. Supp. 441, 446 (N.D. Ill. 1990) ("The very purpose of the public trust doctrine is to police the legislature's disposition of public lands. If courts were to rubber stamp legislative decisions, . . . the doctrine would have no teeth."); Ariz. Ctr. for Law in the Pub. Interest v. Hassell, 837 P.2d 158, 169 (Ariz. Ct. App. 1991) ("Just as private trustees are judicially accountable to their beneficiaries for dispositions of the res, so the legislative and executive branches are judicially accountable for their dispositions of the public trust.").

367. *See, e.g.*, *Alec L.*, 863 F. Supp. 2d at 17 (dismissing ATL federal suit on the basis of displacement by Clean Air Act); Chernaik v. Kitzhaber, 328 P.3d 799, 808 (Or. Ct. App. 2014) (reversing lower court's dismissal based on the political question doctrine, separation of powers doctrine, sovereign immunity, and the court's perceived lack of authority to grant requested relief).

368. *See Alec L.*, 863 F. Supp. 2d at 17; *see also* Chernaik v. Brown, No. 16-11-09273, 2015 WL 12591229, at *9 (Or. Cir. Ct. May 11, 2015) (stating that the climate recovery plan sought by plaintiffs would ask the "[c]ourt to substitute its judgment for that of the Legislature"). The case is on appeal to the Oregon Court of Appeals.

369. For discussion of judicial avoidance in the environmental context, see LISA A. KLOPPENBERG, PLAYING IT SAFE: HOW THE SUPREME COURT SIDESTEPS HARD CASES AND STUNTS THE DEVELOPMENT OF LAW 39–43, 46, 66 (2001), which elaborates on the Court's use of standing in cases such as Lujan v. Defs. of Wildlife, 504 U.S. 555 (1992), to keep environmental claims out of federal court.

370. *See* Weaver & Kysar, *supra* note 45, (manuscript at 39) ("[J]udges have gone to extraordinary lengths to avoid jurisdiction over climate change suits. Although tort

evidence of the severity of the climate crisis and the government's clear lack of appropriate response, courts have begun to discard the displacement, preemption, and political question arguments.

In *Kanuk ex rel. Kanuk v. State, Department of Natural Resources*[371] for example, the Alaska Supreme Court decided that the political question did not foreclose plaintiff's suit, although it rejected the particular declaratory relief sought by the plaintiffs, finding that it would not be dispositive.[372] In Oregon, a trial judge dismissed the plaintiffs' suit because the court thought the question was more appropriate for the legislative branch,[373] but that decision was ultimately reversed on appeal.[374] The Oregon Court of Appeals held that the "plaintiffs are entitled to a judicial declaration of whether, as they allege, the atmosphere 'is a trust resource' that 'the State of Oregon, as a trustee, has a fiduciary obligation to protect [from] the impacts of climate change.'"[375] In a summary of ATL cases, Professor Abate concluded that "several state courts have embraced the concept of ATL as a potential strategy to address climate change regulation in the courts, and it is rapidly gaining support."[376] Although courts have started to accept a judicial role in addressing climate change, they must go further and address fundamental rights as well.

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law could accommodate catastrophe, many courts have preferred to respond with nihilism."); *see also supra* notes 150–54.

371. 335 P.3d 1088 (Alaska 2014).

372. *Id.* at 1102. On August 28, 2017, fifteen Alaska youth re-initiated legal proceedings to force climate action in their state, filing a petition for rulemaking with the Alaska Department of Environmental Conservation. The petition sought greenhouse gas emissions reduction and a climate action plan. Petition of Youth Petitioners and Alaska Youth for Envtl. Action to the Alaska Dep't of Envtl. Conservation 1–2 (August 28, 2017), https://static1.squarespace.com/static/571d109b04426270152febe0/t/59a491ee3e00beb9e2449170/1503957493116/ALASKA+PETITION.08-28-17_Redacted.pdf.

373. Ignoring the purpose of the trust claim to hold the legislature accountable, the court stated, "One of the functions of the legislature is to decide politically—based on whatever facts it deems relevant to the determination—whether or not global warming is a problem and what, if anything, ought to be done about it." Chernaik v. Kitzhaber, No. 16-11-09273, 2012 WL 10205018, at *12–13 (Or. Cir. Ct. Apr. 5, 2012), *rev'd*, 328 P.3d 799 (Or. App. 2014).

374. *Chernaik*, 328 P.3d at 800.

375. *Id.* at 808. The case was remanded, and a further appeal is pending. *See infra* note 384.

376. *See* Abate, *supra* note 102, at 557.

2. Judicial recognition of ATL's foundational legal principles

Beyond recognizing a role for the judiciary, the courts must declare rights to climate stability and underscore the constitutional nature of those rights. Even early cases made considerable headway on both scores. For instance, in 2012, the court in *Bonser-Lain v. Texas Commission on Environmental Quality*[377] upheld the Texas Commission on Environmental Quality's denial of the plaintiffs' rulemaking petition, but not without addressing several of the agency's incorrect assumptions about the case.[378] The court explicitly discarded the agency's determination that the PTD applied only to water, stating that "the [PTD] includes all natural resources of the State," and the federal Clean Air Act provides "a floor, not a ceiling, for the protection of air quality."[379]

In a 2015 case, the New Mexico Court of Appeals determined that the atmosphere was a trust asset; however, the court upheld dismissal of the case on grounds that existing statutes provided the appropriate framework for relief.[380] In *Butler ex rel. Peshlakai v. Brewer*,[381] the Arizona Court of Appeals stated: "[W]e assume without deciding that the atmosphere is a part of the public trust subject to the [PTD]."[382] In Oregon, a lower court rejected air as part of the public trust, but amicus law professors roundly criticized the decision, and the case is now on appeal.[383] In *Kanuk* the Alaska Supreme Court stated that the plaintiffs made a "good case" that the atmosphere is a public trust asset, but the court declined to issue declaratory relief to that effect, on prudential grounds.[384] The Alaska court noted that, even absent a declaration that

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377. No. D-1-GN-11-002194, 2012 WL 2946041 (Tex. Dist. Ct. July 9, 2012), *vacated*, 438 S.W.3d 887 (Tex. App. 2014).

378. *Id.* The Texas Court of Appeals would later hold that the Texas Legislature had not given Texas courts jurisdiction over cases involving agencies' decisions regarding rule making petitions, invalidating the district court decision without addressing the court's findings on the public trust doctrine. *See Proceedings in all 50 States: Texas*, OUR CHILDREN'S TRUST (July 23, 2014), https://www.ourchildrenstrust.org/texas.

379. *Bonser-Lain*, 2012 WL 2946041, at *1–2.

380. *See* Sanders-Reed v. Martinez, 350 P.3d 1221, 1225 (N.M. Ct. App. 2015) (holding that the New Mexico constitution recognizes public trust protection of the atmosphere but concluded that citizens' claims for protection of the atmosphere must be based on existing constitutional or statutory processes).

381. No. 1 CA-CV 12-0347, 2013 WL 1091209 (Ariz. Ct. App. Mar. 14, 2013).

382. *Id.* at *6 (affirming dismissal for lack of remedy).

383. *See* Chernaik v. Brown, No. 16-11-09273, at *15, *16 (Or. Cir. Ct. May 11, 2015); *see also Active State Legal Actions: Oregon*, OUR CHILDREN'S TRUST (Dec. 9, 2016), https://www.ourchildrenstrust.org/oregon.

384. Kanuk *ex rel.* Kanuk v. State, Dep't of Nat. Res., 335 P.3d 1088, 1102 (Alaska 2014).

air is a public trust asset, the trust could include climate change because of its "detrimental impact on already-recognized public trust resources such as water, shorelines, wildlife, and fish."[385]

In Washington's ATL case, *Foster v. Washington Department of Ecology*, the court expressly ruled that the public trust includes air and atmosphere.[386] Judge Hill stated, "The navigable waters and the atmosphere are intertwined and to argue a separation of the two, or to argue that GHG emissions do not affect navigable waters, is nonsensical."[387] The court also decided that the public trust held constitutional force, both as a reserved right and as a right corollary to the state's ownership of submerged lands under the equal footing doctrine.[388] The court declared,

> [T]he State has a constitutional obligation to protect the public's interest in natural resources held in trust for the common benefit of the people of the State. . . . If ever there were a time to recognize through action this right to preservation of a healthful and pleasant atmosphere, the time is now.[389]

3. Judicial management of the remedy

When courts turn to managing the remedy in stage three of ATL cases, their role is no different than in other public trust cases: courts do not exercise direct management over the trust *res*, but instead aim to ensure that the political branches fulfill their trust obligation to avoid destruction or substantial impairment of the *res*. A critical

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385. *Id.* at 1103.

386. *See* Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362, at *4 (Wash. Super. Ct. Nov. 19, 2015).

387. *Id.*

388. *Id.*

389. *Id.* at *3–4; *see* Wood & Woodward, *supra* note 106, at 671 (discussing the constitutional grounds of ruling). Framing the right to a healthy atmosphere as a constitutional right, the Washington court underscored the urgency of climate crisis by citing a December 2014 Washington Department of Ecology report that stated,

> Climate change is not a far off risk. It is happening now globally and the impacts are worse than previously predicted, and are forecast to worsen . . . . If we delay action by even a few years, the rate of reduction needed to stabilize the global climate would be beyond anything achieved historically.

Id. at 670 (alteration in original) (quoting WASH. DEP'T OF ECOLOGY, WASHINGTON GREENHOUSE GAS EMISSION REDUCTION LIMITS vi, 18 (2014)). The court recognized that the climate protection duty is also grounded in the Clean Air Act. *See id.* at 676 n.173 ("This mandatory duty must be understood in the context not just of the Clean Air Act itself but in recognition of the Washington State Constitution and the Public Trust Doctrine.").

difference arises, however, with respect to the urgency with which government must undertake remedial measures. In a tipping-point world, effective relief depends on close judicial supervision to ensure implementation of effective climate recovery plans within applicable time frames. The past approach of deferring to the agencies no will longer suffice in the face of an unforgiving climate reality, coupled with demonstrated agency recalcitrance to take action. Close supervision by the courts involves two tasks: (1) requiring a plan that includes measurable steps and (2) imposing continued oversight to ensure proper execution. Judicial oversight of remedies was characteristic of desegregation, treaty rights, land use, prison reform, and educational funding cases.[390]

Because most states already have some air regulation, and many have climate goals, the problem faced by some ATL courts is not the wholesale lack of agency authority to address climate goals, but instead a lack of effective action to match the scale of what scientists now say is needed to avert irrevocable harm. In some states, the mere existence of a statutory or regulatory scheme for GHG reduction masks serious neglect by the state agencies to implement the charge—not unlike the federal government's longstanding failure to undertake comprehensive GHG regulation under the Clean Air Act.[391] Oregon, for example, set statewide climate targets in 2007, but they were non-binding, never implemented, and are now outdated.[392]

To provide an effective remedy, a court must sometimes undertake the challenging task of comparing the regulatory progress underway with the progress needed as called for by expert testimony (or, as in the case of Washington, as informed by reports issued by the same agency that the youth have sued). Typically, government defendants allege that their regulatory processes will address the problem, and early ATL courts deferred to those processes, even though the plaintiffs alleged that the climate response was breathtakingly

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390. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 250–53 (describing remedial structures judges use to enforce fundamental rights in contexts of longstanding institutional recalcitrance or dysfunction).

391. For the saga of failure to regulate under the Clean Air Act, see *id.* ch. 1.

392. *See* Plaintiff-Appellants' Opening Brief and Excerpts on Record at 11–12, Chernaik v. State, No. A1519826 (Or. Ct. App. Feb. 25, 2016), https://static1.squarespace.com/static/571d109b04426270152febe0/t/5760c4951d07c0ae9834f858/1465959583677/16.02.25.OpeningBriefAppeal.pdf (citing findings of Global Warming Commission that "Oregon is likely to fall well short of the targets set by its greenhouse gas reduction and mitigation plan").

insufficient. The Massachusetts and Washington ATL cases, however, serve as path-breaking examples of courts addressing deficiencies of regulatory action, with the Washington case taking notice of the contemporaneous *Juliana* decision.[393]

a. ATL in Massachusetts: Kain v. Massachusetts Department of Environmental Protection

The Massachusetts ATL case started as a petition for rulemaking to the state's environmental agency in 2012, requesting the state agency to prepare a plan to reduce carbon emissions, as required by the Massachusetts's Global Warming Solutions Act.[394] In a dystopian coincidence, Hurricane Sandy, one of the largest storms ever to hit the East Coast, delayed the youth petitioners in filing their petition.[395] Although the Massachusetts Department of Environmental Protection (DEP) denied the petition in June 2013, citing ongoing and upcoming efforts to address carbon emissions, the DEP's decision agreed with the petitioners that it was the state's responsibility "to protect the integrity of Massachusetts's atmospheric resource, climate system, and shorelines by adequately protecting our atmosphere."[396] However, the DEP's decision also maintained that state positive law supplanted the

393. *See Foster* Order of Contempt Denial, *supra* note 118, at 4–5 (discussing the role of courts in protecting the atmospheric public trust). Notably, too, a court in the Netherlands has found government action deficient in comparison to the action scientists emphasize is necessary, as explained below in Section VII.B.

394. *See* Rulemaking Petition from Eshe Sherley et al. on Regulating CO_2 Emissions to the Mass. Dep't of Envtl. Prot. (Nov. 1, 2012), https://static1.squarespace.com/static/571d109b04426270152febe0/t/57609324356fb0f59a89b317/1465946918296/2012.10.31-FINAL+MA+Petition_0.pdf (requesting that the Massachusetts Department of Environmental Protection promulgate rules to protect the atmosphere, climate, and shorelines).

395. *See* Press Release, Our Children's Trust et al., In the Wake of Hurricane Sandy, Boston Students Deliver Climate Change Petition to the Massachusetts Department of Environmental Protection (Nov. 1, 2012), https://static1.squarespace.com/static/571d109b04426270152febe0/t/576d695fb8a79bb6a90c3517/1466788195645/2012.11.1-PressRelease+MA+%281%29.pdf (stating that the children were delayed from hand-delivering their Petition for Rulemaking on a Monday due to Hurricane Sandy, which shut down Boston public schools).

396. *The Massachusetts Department of Environmental Protection's Action on the* Kids vs. Global Warming *Petition* 2, MASS. DEP'T OF ENVTL. PROT. (June 24, 2013), http://www.mass.gov/eea/docs/dep/air/community/kvgwrtp.pdf.

state's public trust doctrine.[397] In response, the petitioners filed an appeal with the district court.[398]

The district court affirmed DEP's denial in 2015, and the youth plaintiffs appealed.[399] Just six months later, the Massachusetts Supreme Judicial Court decided to take the case on direct review, skipping the lower appellate court.[400] In May 2016, the Massachusetts court handed a resounding victory to the youth, deciding that the DEP failed to satisfy its legal obligation to reduce the state's GHG emissions pursuant to legislative goals.[401] The state's existing schemes, it determined, "fall short."[402] The court ordered the agency to "promulgate regulations that address multiple sources or categories of sources of emissions, impose a limit on emissions that may be released . . . and establish limits that decline on an annual basis."[403]

The Massachusetts high court did not order the lower court to retain jurisdiction over the remedy, but the decision prompted a concerted and direct response from the state's political branches.[404] On September 2016, Governor Charles Baker issued Executive Order No. 569: "Establishing an Integrated Climate Change Strategy for the Commonwealth."[405] The order required the DEP to promulgate a regulatory scheme by August 11, 2017, that would establish annual reductions in the state's GHG emissions.[406]

Although the outcome of *Kain* is a promising sign of progress, tangible emissions reductions do not result from a signature on an executive order. The importance of continued judicial oversight was evident in the Washington ATL case described below.

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397. *Id.* at 10.

398. *See* Complaint 1–2, Kain v. Mass. Dep't of Envtl. Prot., No. SUCV201402551, 2015 WL 3540828 (Mass. Super. Ct. 2014) (No. 14-2551), 2014 WL 3924998.

399. *See Kain*, No. SUCV201402551, 2015 WL 3540828, at *10 (denying Plaintiffs' Motion for Summary Judgment); *Active State Legal Actions: Massachusetts*, OUR CHILDREN'S TRUST (Mar. 25, 2015), https://www.ourchildrenstrust.org/massachusetts (discussing the filing of the youths' appeal).

400. *See Active State Legal Actions: Massachusetts*, *supra* note 399.

401. *See* Kain v. Mass. Dep't of Envtl. Prot., 49 N.E.3d 1124, 1128 (Mass. 2016).

402. *Id.*

403. *Id.* at 1136.

404. *See Active State Legal Actions: Massachusetts*, *supra* note 399.

405. *See* Exec. Order No. 569, Establishing an Integrated Climate Change Strategy for the Commonwealth, Gov. Charles D. Baker, Sept. 16, 2016.

406. *Id.* § 2.

b. ATL in Washington:
Foster v. Washington Department of Ecology

In the Washington ATL case, the Department of Ecology (DOE) denied the youth plaintiffs' petition for science-based rulemaking, and the plaintiffs appealed to the Washington Superior Court. In *Foster v. Washington Department of Ecology*, Judge Hollis Hill issued her first opinion in June 2015, ordering DOE to reconsider its denial of the youths' petition.[407] While DOE was reconsidering its decision, the plaintiffs met with Governor Jay Inslee. After the meeting, Governor Inslee issued a directive to the DOE to engage in the science-based rulemaking the youths sought.[408] Subsequently, the DOE again denied the youths' petition on the ground that the executive directive initiated the rulemaking that the plaintiffs requested.[409]

The youths appealed again. In the ensuing decision, Judge Hill upheld the DOE's denial of the rulemaking petition, conceding that the court lacked the power to dictate how the DOE can fulfill its duty to promulgate directives, but not without declaring that the DOE is still statutorily and constitutionally compelled to fulfill its trust duty to protect the atmosphere.[410] The court's approach to interpreting the plaintiffs' public trust rights was undoubtedly influenced by the dilatory climate response from the other branches of government. Judge Hill had to look no further than the DOE's own December 2014 report to find that the DOE itself acknowledged that the amount of emissions reduction required by Washington law was wholly

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407. *See* Order Remanding Dep't of Ecology's Denial of Petition for Rule Making at 4, Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362 (Wash. Super. Ct. Nov. 19, 2015), https://static1.squarespace.com/static/571d109b04426270152febe0/t/576080a91bbee08251f28287/1465942187394/Order_Fosterv.Ecology.pdf. For a detailed discussion of *Foster*, see Wood & Woodward, *supra* note 106, at 669–81.

408. *See* Press Release, Our Children's Trust et al., In Advance of Paris Climate Talks, Washington Court Recognizes Constitutional and Public Trust Rights and Announces Agency's Legal Duty to Protect Atmosphere for Present and Future Generations (Nov. 20, 2015), http://ourchildrenstrust.org/sites/default/files/15.11.20WADecisionPR.pdf (explaining the timeline of the youths' efforts to ensure that the DOE promulgate a carbon emissions rule, including meeting with Governor Inslee).

409. *Id.*

410. *See* Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362, at *4 (Wash. Super. Ct. Nov. 19, 2015). Judge Hill stated that the state has the duty to establish a regime of air quality standards that "[p]reserves, protect[s] and enhance[s] the air quality for the current and future generations." *Id.* at *3 (alteration in original) (quoting WASH. REV. CODE. 70.94.011).

inadequate.[411] Judge Hill consequently found that the existing requirements "cannot achieve the GHG reductions necessary . . . to ensure the survival of an environment in which Petitioners can grow to adulthood safely."[412]

Three months after the court's dismissal, DOE dropped its rulemaking procedure, leading to another appeal. This time Judge Hill responded by stating:

> This is an extraordinary circumstance that we are facing here. . . . The reason I'm doing this is because this is an urgent situation. This is not a situation [in which] these children can wait. . . . Polar bears can't wait, the people of Bangladesh can't wait. I don't have jurisdiction over their needs in this matter, but I do have jurisdiction in this court, and for that reason, I'm taking this action.[413]

Judge Hill ordered DOE to promulgate an emissions reduction rule by the end of 2016 and to submit recommendations to the legislature concerning science-based reductions for the 2017 legislative session.[414] She also directed DOE to consult with the plaintiffs before making those legislative recommendations.[415]

Governor Inslee appealed the decision, rolling out a proposed clean air rule supported by the fossil-fuel industry that fell short of the court's orders.[416] The plaintiffs responded with a motion for contempt of court.[417] Although Judge Hill denied the contempt motion, she did

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411. *Id.* at *2. *See generally* WASH. DEP'T OF ECOLOGY, WASHINGTON GREENHOUSE GAS EMISSION REDUCTION LIMITS 2014), https://fortress.wa.gov/ecy/publications/documents/1401006.pdf.

412. *Foster*, No. 14-2-25295-1 SEA, 2015 WL 7721362, at *2.

413. Order on Petitioners' Motion for Relief Under CR 60(b) at 20, Foster v. Wash. Dep't of Ecology, No. 14-2-25295-1 SEA, 2015 WL 7721362 (Wash. Super. Ct. Nov. 19, 2015) [hereinafter Order on Petitioners' CR 60(b) Motion], https://static1.squarespace.com/static/571d109b04426270152febe0/t/57607f4901dbaec634f08166/1465941834691/16.05.16.Order_.pdf.

414. *See Youths Secure Second Win in Washington State Climate Lawsuit: Judge Chastises State, Rules from Bench Ordering State to Reduce Carbon Emissions*, W. ENVTL. L. CTR. (Apr. 29, 2016), http://westernlaw.org/article/youths-secure-second-win-washington-state-climate-lawsuit-press-release-42916 (citing the Department of Ecology's admission that "Washington's existing statutory limits should be adjusted to better reflect the current science").

415. Order on Petitioners' CR 60(b) Motion, *supra* note 413, at 3.

416. *See* Press Release, Our Children's Trust et al., WA Gov. Doubles Down on Betraying Youth (June 16, 2016), https://static1.squarespace.com/static/571d109b04426270152febe0/t/576da0b8ff7c50a6aea2f349/1466802374364/2016.06.16InsleeAppealPR.pdf (noting that the proposed rule was supported by fossil fuel companies such as Chevron, Shell, and Duke Energy).

417. Order on Petitioners' CR 60(b) Motion, *supra* note 413, at 3.

grant the plaintiffs' request to amend the original complaint to include a constitutional climate rights claim "due to the emergent need for coordinated science based action by the State of Washington to address climate change before efforts to do so are too costly and too late."[418] Judge Hill, citing the *Juliana* decision, decided that

> where a complaint alleges governmental action is affirmatively and substantially damaging the climate system in a way that will cause human deaths, shorten human lifespans, result in widespread damage to property, threaten human food sources, and dramatically alter the planet's ecosystem, it states a claim for a due process violation.[419]

Judge Hill made clear that the youths would have their day in court to make their claims. Perhaps more importantly, Judge Hill embraced a judicial role because of the magnitude of the issue: "Because this court is fully advised in the matter thus far it retains jurisdiction to implement this ruling and proceed as expeditiously as possible."[420] Thus, *Foster* became the first ATL action to progress to the remedial stage of litigation.[421]

In addition to the cases mentioned above, a decision by the Colorado Court of Appeals in March 2017 handed a victory to youth plaintiffs that challenged hydraulic fracking practices.[422] Ongoing state ATL actions in Maine, Oregon, and Pennsylvania have potential for positive outcomes as well.[423] As mentioned earlier, although these decisions will not be binding on other states, they may prove influential elsewhere.

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418. *See Foster* Order of Contempt Denial, *supra* note 118, at 2.

419. *Id.* at 4 (quoting Juliana v. United States, 217 F. Supp. 3d 1224, 1250 (D. Or. 2016)).

420. *Id.* at 5.

421. For additional discussion of the decision, see Weaver & Kysar, *supra* note 45 (manuscript at 56–61). As the litigation continues, the court has emphatically acknowledged the urgency. In an opinion on a procedural motion, the court noted "the emergent need for coordinated science based action to address climate change before efforts to do so are too costly and too late. . . . Time has marched on. . . . To date, the legislature has not acted to establish binding requirements to meet statutory emissions limits." *Foster* Order of Contempt Denial, *supra* note 118, at 2–3.

422. Martinez v. Colo. Oil & Gas Conservation Comm'n, 2017 WL 1089556, at *8 (Colo. Ct. App. Mar. 23, 2017). For coverage, see Corey Hutchins, *Colorado Elected Officials in a Letter to the Governor: Don't Appeal This Court Case*, COLO. INDEP. (May 16, 2017), http://www.coloradoindependent.com/165471/hickenlooper-martinez-appeal-colorado-oil-gas.

423. For information and links to each case, see *State Judicial Actions Now Pending*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/pending-state-actions (last visited Oct. 23, 2017).

Meanwhile, Our Children's Trust is formulating additional actions in Hawaii, North Carolina, Alaska, New Mexico, Florida, and other states.[424]

B. Worldwide Atomspheric Trust Litigation

The ATL campaign draws upon the public trust principle in large part because it is a universal principle of ecological obligation, as the doctrine has developed both in the United States and abroad.[425] The idea is that, in the wake of a failure of international treaty negotiations, domestic courts across the world are positioned to enforce climate obligations from a shared framework of fiduciary responsibility toward the common atmosphere.[426] ATL suits seek to accomplish, through decentralized domestic litigation in other countries, what has thus far eluded the centralized, international diplomatic treaty-making process. The ATL campaign characterizes all nations as co-trustees of the atmosphere, each holding a duty towards both their own citizens and their co-trustees of protecting the shared atmospheric trust.[427] If the ATL approach succeeds, domestic actions would force science-based CO_2 reduction and create tangible backing to the principles declared in the United Nations Framework Convention on Climate Change (UNFCCC), agreed to in 1992 by 192 nations of the world.[428]

Long before the ATL global litigation, many leading cases established the public trust as a recognized principle in legal systems throughout the world. In a path-breaking 1993 decision from the Philippines, *Oposa v. Factoran*, the Philippines Supreme Court declared an inherent right to ecological balance "exist[ing] from the inception of humankind."[429] Children and their parents brought the lawsuit to prevent the federal government from allowing private logging corporations to cut down the last remaining old-growth forests in the country.[430] Invoking the trust to enjoin any further logging, the Court declared:

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424. *See Other Proceedings in All 50 States*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/other-proceedings-in-all-50-states (last visited Oct. 23, 2017).

425. *See infra* note 429.

426. *See* Wood, *ATL chapter*, *supra* note 100, at 142 (outlining the framework of relief that courts should utilize to holds states accountable for emissions reductions).

427. *See id.*

428. *See* United Nations Framework Convention on Climate Change, May 9, 1992, S. Treaty Doc No. 102-38, 1771 U.N.T.S. 107.

429. G.R. No. 101083, 224 S.C.R.A. 792, 805 (S.C. July 30, 1993) (Phil.) (rejecting the government's claim that the case raised political questions unsuited for judicial resolution).

430. *Id.* (alleging that twenty-five years prior, the Philippines had sixteen million hectares of rainforests, roughly 53% of the country's land mass, but the rate of tree

> Needless to say, every generation has a responsibility to the next to preserve that rhythm and harmony for the full enjoyment of a balanced and healthful ecology.
>
> . . . .
>
> . . . [T]he right to a balanced and healthful ecology . . . belongs to a different category of rights [than civil and political rights] altogether for it concerns nothing less than self-preservation and self-perpetuation . . . the advancement of which may even be said to predate all governments and constitutions.
>
> As a matter of fact, these basic rights need not even be written in the Constitution for they are assumed to exist from the inception of humankind. If they are now explicitly mentioned . . . it is because of the well-founded fear of its framers that unless the right to a balanced and healthful ecology and to health are mandated as state policies by the Constitution itself . . . the day would not be too far when all else would be lost not only for the present generation, but also for those to come—generations which stand to inherit nothing but parched earth incapable of sustaining life.[431]

Indeed, the *Oposa* suit, brought on behalf of children, provided the template for suits in the atmospheric trust context nearly two decades later. The court in *Juliana* cited some of the reasoning in *Oposa*, identifying as a basis for its decision the declaration that future generations have an inherent constitutional right to a "balanced and healthy ecology."[432]

A subsequent case decided by the Philippines Supreme Court invoked the PTD in issuing a comprehensive injunction requiring the cleanup of pollution in Manila Bay.[433] That case informed the remedy sought in the atmospheric trust cases, as the Philippines Supreme Court retained jurisdiction to supervise a number of agencies in following a comprehensive plan to clean up the bay.[434]

International recognition of the PTD includes the India Supreme Court's 1997 landmark decision enjoining a resort development on

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harvesting reduced the amount to 850,000 hectares of old-growth rainforests and three million hectares of secondary growth forest, a mere 2.8% of the country's land mass).

431. *Id.*

432. *See* Juliana v. United States, 217 F. Supp. 3d 1224, 1250, 1261 (D. Or. 2016) (citations omitted).

433. *See* Metro. Manila Dev. Auth. v. Concerned Residents of Manila Bay, G.R. No. 171947-48, 574 S.C.R.A. 661, 661 (S.C. Dec. 18, 2008) (Phil.).

434. *See* WOOD, NATURE'S TRUST, *supra* note 114, at 246–51 (describing the judicial remedy as "encompassing and aggressive" and noting that the court was responsible for overseeing the cleanup).

forest land adjacent to the Beas River.[435] The court announced that "[u]nlike our laws, nature cannot be changed by legislative fiat; [natural law is] imposed on us by the natural world. An understanding of the laws of nature must therefore inform all of our social institutions."[436] Other courts affirming the PTD include those in Uganda, Kenya, Indonesia, South Africa, and Canada;[437] many jurisdictions have located the PTD in their constitutions' promise of a "right to life."[438]

Several of these world-wide PTD cases reflect an awakening of the judiciary as the key institution to address ecological crises. PTD actions abroad have in fact produced some resounding victories, including in the climate-change context. The most prominent recent example was a 2015 Netherlands district court decision, which agreed with environmentalists that the country had to take action to reduce greenhouse gas emissions by 2020 to levels at least 25% below those of 1990.[439] Since the Dutch government already agreed to an emissions reduction of 14% to 17%, the case was the first time a court intervened to pronounce the government's remedial efforts inadequate in light of

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435. Mehta v. Kamal Nath, (1997) 1 S.C.C. 388 (India) (overturning approval for the development, setting aside the lease granted to the developer, and requiring the government to take control of and rehabilitate the area).

436. *Id.* (concluding that the PTD includes all natural resources, is enforceable by public beneficiaries, and includes the "polluter pays" principle). Other India PTD decisions, including those interpreting the PTD to reflect "time immemorial natural law," are discussed in BLUMM & WOOD, *supra* note 107, at 340.

437. *See* BLUMM & WOOD, *supra* note 107, at 346–64 (citing British Columbia v. Canadian Forest Prods., Ltd., 2 S.C.R. 74 (Can. 2004); Wawaru v. Republic, 1 K.L.R. 677 (Kenya 2006) (discussing the Pakistani cases and concluding that the PTD is a natural law right); Advocates Coal. for Dev. and Env't v. Attorney General, Misc. Cause No. 0100 (Uganda 2004) (interpreting the PTD to require local consent before government approves public land leases or concessions)); *id.* at 352–53 (discussing Indonesian cases); David Takacs, *The Public Trust Doctrine, Environmental Human Rights, and the Future of Private Property*, 16 N.Y.U. ENVTL. L.J. 711, 740–47 (2008) (discussing South African cases). *See generally* Michael C. Blumm & Rachel D. Guthrie, *Internationalizing the Public Trust Doctrine: Natural Law and Constitutional and Statutory Approaches to Fulfilling the Saxion Vision*, 45 U.C. DAVIS L. REV. 741, 745–46 (2012) (discussing the internationalization of the public trust doctrine and how, despite its modern emergence in the United States, the doctrine developed most significantly abroad).

438. For a discussion of the development of the PTD overseas through constitutional mandates, see Blumm & Guthrie, *supra* note 437, at 762–85, discussing the constitutions of India, Pakistan, Nigeria, and Brazil.

439. Urgenda Found. v. State of the Netherlands, Rechtbank Den Haag, C/09/456689/HA ZA 13-1396 (Neth. June 24, 2015), https://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2015:7196. The Urgenda Foundation filed as a citizens' organization whose purpose is to develop measures to prevent climate change, and on behalf of 886 Dutch citizens.

the best available science.[440] Moved by the severity and scope of the climate problem, the government's knowledge and the foreseeability of the damage, and the risk that hazardous changes in climate will occur, the court decided that the government breached its duty of care and ordered the government to use its authorities to further reduce GHG emissions.[441] The decision came at a crucial time, offering a "well-spring of inspiration" to climate litigants worldwide.[442]

The Dutch court cited the quarter-century old 1992 U.N. Climate Treaty as evidence that the Dutch government, in signing the treaty, had accepted responsibility to reduce emissions as much as necessary to avert climate catastrophe.[443] The three-judge panel rejected the government's claim that judicial action was unwarranted because the solution to the global climate problem could not be resolved solely by Dutch efforts. But since the country's per-capita emissions are among of the highest in the world, any reduction of emissions will contribute to the prevention of dangerous climate change.[444] Moreover, the court ruled that there was sufficient evidence to assume a causal link between the Dutch greenhouse gas emissions, global climate change, and the effects (now and in the future) on the Dutch climate.[445] The court also rejected the government's claim that judicial intervention was an unwarranted intrusion on the political branches of government.[446] The decision was the first to invoke human rights as a basis to protect individuals against climate change.[447] In many significant respects, the

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440. *See* Arthur Neslen, *Dutch Government Ordered to Cut Carbon Emissions in Landmark Ruling*, GUARDIAN (June 24, 2015, 6:04 AM), https://www.theguardian.com/environment/2015/jun/24/dutch-government-ordered-cut-carbon-emissions-landmark-ruling (reporting that the court stated that "[t]he state should not hide behind the argument that the solution to the global climate problem does not depend solely on Dutch efforts . . . [because a]ny reduction of emissions contributes to the prevention of dangerous climate change and as a developed country the Netherlands should take the lead in this").

441. *See Urgenda Found.*, C/09/456689/HA ZA 13-1396, §§ 4.83–4.86, 5.1.

442. Weaver & Kysar, *supra* note 45, (manuscript at 40) (praising the decision for offering "judicial leadership in the articulation of climate change norms").

443. *Urgenda Found.*, C/09/456689/HA ZA 13-1396, § 4.66.

444. *Id.* § 4.78–4.79.

445. *Id.* § 4.90.

446. *Id.* § 4.94–4.98. ("It is an essential feature of the rule of law that the actions of (independent, democratic, legitimized[,] and controlled) political bodies, such as the government and parliament can—and sometimes must—be assessed by an independent court.").

447. *See* Weaver & Kysar, *supra* note 45, (manuscript at 40–53) (discussing the *Urgenda* judges' use of tort-like reasoning in reaching the result as a way to "counteract

Netherlands decision responded to the same arguments faced by the *Juliana* court and the state courts in ATL cases.

Other international ATL cases have also met with success. In Pakistan, a farmer brought a case alleging that climate inaction (both with respect to emissions reduction and mitigation) violated the fundamental constitutional rights to life and dignity and the public trust doctrine.[448] Underscoring these rights, the Lahore High Court fashioned a classic structural injunction remedy, creating an administrative judicial apparatus to supervise the undertaking of climate actions, ordering the establishment of a Climate Change Commission comprised of high cabinet officials.[449] Directing the commission to carry out the climate measures forged through a framework formulated but never implemented by the government, the court's order contemplated ongoing reports and judicial supervision.[450]

Later, in the spring of 2016, a seven-year-old girl filed a separate lawsuit in the Pakistan Supreme Court. She asserted that the government, through the exploitation and promotion of fossil fuels, had violated the PTD and the youngest generation's constitutional rights to life, liberty, property, human dignity, and equal protection of the law.[451] A few short months later, reversing a registrar's earlier rejection of the constitution petition, the court ruled that the youth plaintiff's climate change lawsuit could proceed to the merits of the case.[452]

In Ukraine, youth secured a swift partial ATL victory when the court ordered the government to prepare an assessment of the country's progress toward realizing the reduction goals set by the Kyoto Protocol.[453] Other atmospheric trust petitions and lawsuits, tailored to

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the intransigence of power" and to "respond creatively and dynamically to a world of chaotic and unpredictable harm").

448. Leghari v. State, (2016) W.P. No. 25501/2015, at *1–2, *4 (Pak.).

449. *Id.* at *6–7.

450. *Id.* at *8.

451. Ali v. State, Constitution Petition, at 4, 13 (Apr. 5, 2016), https://static1.squarespace.com/static/571d109b04426270152febe0/t/576c56ff6a4963de8ddd5613/1466717953266/PakistanYouthClimatePetition.pdf.

452. *See* Naeem Sahoutara, *Seven-Year-Old Girl Takes on Federal, Sindh Governments*, EXPRESS TRIB. (June 29, 2016), https://tribune.com.pk/story/1133023/seven-year-old-girl-takes-federal-sindh-governments (stating that Pakistan's Supreme Court reversed the registrar's determination that seven-year-old Rabab Ali was barred from filing a public interest petition).

453. Litigation in that country has been stymied by extreme political unrest. For updates, see *Global Legal Actions: Ukraine*, OUR CHILDREN'S TRUST https://www.ourchildrenstrust.org/ukraine (last visited Oct. 23, 2017).

the laws and circumstances of the particular country, are pending. For example, in India, a nine-year old filed a climate change petition against her government in March 2017, asserting duties under the public trust doctrine, intergenerational equity, and India's constitution.[454] She asked the National Green Tribunal to order the government of India to prepare a carbon budget and national climate recovery plan designed to reduce India's share of the global atmospheric CO_2 to below 350 ppm by 2100.[455] The case is before the court as of this writing.

In the Philippines, youth filed a broad petition asking the courts to reconfigure the road system to allow non-fossil fuel transportation.[456] In Norway, citizens sued to prevent the government from allowing oil drilling in the Arctic Barents Sea, asserting rights declared in a constitutional amendment that was passed just two years before.[457] They also asserted a public trust right to a healthful environment "that will be safeguarded for future generations as well."[458] Actions are planned in other countries including Canada, France, Australia, England, and Belgium.[459] And, in September 2017, in the wake of devastating wildfires that ravaged Portugal, a group of Portuguese schoolchildren made a global crowd-funding bid to support a youth lawsuit against all European nations in the European Court of Human Rights to force carbon reduction.[460] The strategy, building on the successes of atmospheric trust litigation in the United States and elsewhere,[461] would be the first time in which multiple governments

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454. *See Global Legal Actions: India*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/india (last visited Oct. 23, 2017).

455. *See* Press Release, Our Children's Trust, Youth Files Climate Case with India's Environmental Court (Mar. 30, 2017), https://static1.squarespace.com/static/571d109b04426270152febe0/t/58dd78f5f7e0abe149e9fb35/1490909429734/2017.03.30+India+Climate+Case+PR.pdf.

456. *Global Legal Actions: Philippines*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/philippines (last visited Oct. 23, 2017).

457. *See Global Legal Actions: Norway*, OUR CHILDREN'S TRUST, https://www.ourchildrenstrust.org/norway (last visited Oct. 23, 2017).

458. *Id.* (citing KONGERIKET NORGES GRUNNLOV [CONSTITUTION] May 17, 1814, art. 112 (Nor.)).

459. For updates on the global litigation, see *Global Legal Actions*, OUR CHILDREN'S TRUST https://www.ourchildrenstrust.org/global-legal-actions (last visited Oct. 23, 2017).

460. Sandra Laville, *Portuguese Children to Crowdfund European Climate Change Case*, GUARDIAN (Sept. 24, 2017, 7:01 PM), https://www.theguardian.com/world/2017/sep/25/portuguese-children-crowdfund-european-climate-change-case-sue-47-countries.

461. *See* Bobby Magill, *Another Youth Climate Lawsuit Turns to Crowdfunding in Portugal*, CLIMATE LIABILITY NEWS (Sept. 27, 2017), https://www.climateliabilitynews.org/

are sued at once in the same proceeding. Clearly, the pace of ATL litigation abroad is quickening.

CONCLUSION

The *Juliana* decision was a path-breaking one, finding the right to a stable climate system protected by constitutional due process, including the PTD.[462] Key to the decision was a determination lodging the right to a stable climate system in the due process clause of the Constitution.[463] Such a fundamental right imposes a standard of strict judicial scrutiny concerning the government's fossil fuel policies that are the subject of the youths' systemic challenge..[464] Deciding that a fundamental right to a healthy atmosphere existed, given the stakes involved and the growing precedent in support, seemed no great reach from previously recognized fundamental rights to privacy, procreation, marriage, and interstate travel.[465]

The *Juliana* court's determination that the Constitution proscribed the government's interference with the youths' PTD rights was also in keeping with considerable international precedent.[466] The court refrained from deciding whether the atmosphere was a public trust resource—although it cited sufficient authority to do so[467]—but Judge Aiken did rule that the close relationship between atmospheric GHG pollution and adverse effects on trust resources like oceans and navigable waters could produce a PTD violation.[468] In short, the court regarded the atmosphere as unquestionably ancillary to traditional trust resources like the ocean and the territorial seas.

The *Juliana* approach paralleled other courts' protection of corollary resources and public access to them. For example, courts have secured public access to dry sand beaches, finding such access necessary to full enjoyment of the traditional public trust in tidelands.[469]

2017/09/27/youth-climate-lawsuit-portugal-wildfires (noting how the Portuguese litigation was inspired by the *Juliana* case).

462. Juliana v. United States, 217 F. Supp. 3d 1224, 1248, 1252 (D. Or. 2016).

463. *Id.*

464. *See supra* note 165 and accompanying text.

465. *See supra* notes 177–83 and accompanying text.

466. *See supra* Section VII.B.

467. *See Juliana*, 217 F. Supp. 3d. at 1255 n.10.

468. *Id.*

469. Matthews v. Bay Head Improvement Ass'n, 471 A.2d 355, 360, 363–65 (N.J. 1984); Thornton v. Hay, 462 P.2d 671, 672–73 (Or. 1969); *see supra* note 245 and accompanying text.

In the same vein, courts have protected non-navigable tributaries to navigable waters held in trust and have extended trust protection to groundwater with a hydrological connection to surface trust waters.[470]

Judge Aiken closed her opinion by observing that federal courts "have been . . . overly deferential in the area of environmental law, and the world has suffered for it."[471] She paid tribute to Judge Alfred Goodwin's decision in the Oregon beach case,[472] which found a public right to access the beach based on customary rights,[473] Judge Aiken stated that the *Juliana* case had "strong echoes" of the public claims affirmed in that landmark case.[474] At a time in which the U.S. Supreme Court seems prepared to reconsider its doctrine of judicial deference to administrative decision making,[475] the *Juliana* decision provided path-breaking reasoning for the imposition of a judicial check on the political branches—at least where the survival interests of young people and future generations are at stake.

It should not surprise students of American legal history that the climate crisis worsened steadily for decades and entered its "eleventh hour" before a court declared a due process liberty and public trust

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470. *See, e.g.*, Nat'l Audubon Soc'y v. Super. Ct. of Alpine Cty., 658 P.2d 709, 724 (Cal. 1983); *In re* Water Use Permit Applications, 9 P.3d 409, 445–47 (Haw. 2000) (extending trust protection to "all water resources without exception or distinction," reasoning, "[m]odern science and technology have discredited the surface-ground dichotomy"). For discussion of the judicial approach extending trust protection to ancillary resources, see WOOD, NATURE'S TRUST, *supra* note 114, at 160–61.

471. *Juliana*, 217 F. Supp. 3d at 1262 (citing Alfred T. Goodwin, *A Wake-Up Call for Judges*, 2015 WIS. L. REV. 785, 785–86, 788 (2015)).

472. *Hay*, 462 P.2d at 672–73; *see* Michael C. Blumm & Eric A. Doot, *Oregon's Public Trust Doctrine: Public Rights in Waters, Wildlife, and Beaches*, 42 ENVTL. L. 375, 407–09 (2012) (discussing the *Hay* decision).

473. *Hay*, 462 P.2d at 672–73.

474. *See Juliana*, 217 F. Supp. 3d at 1262. Judge Aiken noted that one member of the Oregon Supreme Court thought that the state's beaches should have been declared subject to public use by virtue of the PTD. *Id.* at 1262, n.14 (citing *Hay*, 462 P.2d at 679 (Denecke, J., concurring)).

475. *See* Lisa Heinzerling, *The Power Canons*, 58 WM. & MARY L. REV. (forthcoming 2017) (manuscript at 1), https://ssrn.com/abstract=2757770 (asserting that the Supreme Court has embraced new canons of statutory interpretation and identifying situations in which "the Court took interpretive power from an administrative agency, power that would normally have been the agency's due under *Chevron*, and kept it for itself," reflecting a basic distrust of an active administrative state); Amanda Reilly, *Chevron Doctrine on the Ropes as Trump Era Looms*, GREENWIRE (Dec. 9, 2016), http://www.eenews.net/greenwire/stories/1060046945/search?keyword=Chevron+deference (explaining that the Trump administration has considered appointing anti-*Chevron* judges).

right to something so fundamental as a stable climate system—the necessity of which will become only more obvious as climate chaos takes its toll on human survival and civilization. Rights today widely recognized as fundamental—like First Amendment rights to religion and speech—were not commonly recognized by the federal courts until more than a century-and-a-half after the ratification of the First Amendment.[476] As Justice Kennedy acknowledged, sometimes fundamental liberty rights are "not always see[n] . . . in our own times . . . ," but the Framers "did not presume to know the extent of freedom in its all its dimensions, and so they entrusted to future generations a charter of protecting the right of all persons to enjoy liberty as we learn its meaning."[477]

The right to a stable climate system, like the right to marry and the right to racial non-discrimination, if not originally among those rights the Framers thought were constitutionally protected, is certainly "deeply rooted in this Nation's history and tradition" and "fundamental to our scheme of ordered liberty."[478] And too, a stable climate system remains the linchpin to the full ecological endowment secured by the public trust principle.

In addition to its effect in other courts, decisions like *Juliana* can serve broad educative functions in society, inspiring waves of change beyond the courthouse doors, similar to the Supreme Court's historic decision in *Brown v. Board of Education*,[479] ruling that racial discrimination in public education is unconstitutional. Although it took a decade, *Brown* led to the Civil Rights Act of 1964[480] and the Voting Rights of 1965,[481] which effectively ended U.S. *de jure* racial segregation that had persisted since before the nation's inception. Someday, *Juliana* may be seen in the same broad educative light as *Brown*. At the moment, however, the *Juliana* decision, resting as it does on constitutional rights, seems to represent a judicial bulwark against

476. *See* W. Va. Bd. of Educ. v. Barnette, 319 U.S. 624, 642 (1943) (overturning a decision that was only three-years-old, Minersville Sch. Dist. v. Gobitis, 310 U.S. 586 (1940), and ruling, in an unprecedented decision, that the Free Speech Clause of the First Amendment protected schoolchildren from being forced to salute the American flag and say the Pledge of Allegiance in school).

477. *Juliana*, 217 F. Supp. 3d at 1249 (quoting Obergefell v. Hodges, 135 S. Ct. 2584, 2589 (2015)).

478. *Id.* at 1249 (quoting McDonald v. City of Chi., 561 U.S. 742, 767 (2010)).

479. 347 U.S. 483 (1954).

480. 42 U.S.C. § 2000a-h (2012).

481. 52 U.S.C. § 10101–10702 (2012).

a reckless ramp-up of fossil-fuel production in the United States that could push the planet past irreversible tipping points.

Perhaps the most important aspect of the *Juliana* decision is that it took a courageous and historic step into what Professor Kysar has identified as a gulf between normative law and climate catastrophe,[482] turning a judicial tide of other climate cases—cases that evaded the calls of justice through procedural maneuvers—to address the climate reality unflinchingly and to accept the institutional "grace of responsibility" with exacting jurisprudential care and considerable doctrinal mooring.[483]

In this vein, the *Juliana* opinion "demonstrate[s] the more dynamic, adaptive, and restless forms of jurisdictional assertion required in an age of unlimited harm."[484] Against a reality where "[t]oday's political failures may foreclose possible natural worlds," threatening damage that is "irreversible on any conceivable human timescale," *Juliana* paves the way for courts faced with similar suits to require the political branches to take remedial action before the crisis spirals completely out of humanity's control.[485] These cases are, indeed, the "jurisdictional struggles that define the boundary between legal order and catastrophic overturning."[486] Such judicial intervention across the globe cannot happen a moment too soon.[487]

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482. *See* Weaver & Kysar, *supra* note 45, (manuscript at 7) ("Catastrophes . . . create situations of misalignment, where a void opens between normative structure and cognizable fact.").

483. *Id.* (manuscript at 33) (describing climate tort cases and observing that "evasiveness has characterized most judicial responses to climate change torts").

484. *Id.* (manuscript at 40). We include, in this characterization, the opinions written by Magistrate Coffin as well, for they broke ground in new constitutional terrain and laid the foundation for Judge Aiken's historic opinion.

485. *Id.* (manuscript at 14).

486. *Id.* (manuscript at 40).

487. *See id.* (manuscript at 1) ("Against the backdrop of a potentially existential threat, judges redeem the very possibility of law when they forthrightly confront the merits of climate lawsuits.").