TOO HOT TO HANDLE: SCIENTIFIC EVIDENCE AND THE ABDICATION OF THE *JULIANA* COURT

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I. INTRODUCTION

"We conclude that in the field of public education the doctrine of 'separate but equal' has no place. Separate educational facilities are inherently unequal."[1] Chief Justice Earl Warren read the unanimous *Brown v. Board of Education* decision at the Supreme Court in a room full of reporters over the span of twenty-eight minutes.[2] The Nation instantly recognized that this opinion would touch every citizen.[3] Voices on either side of the decision spoke out loudly, either praising it or proclaiming its mistake.[4] The Court, perhaps hoping that the voices would soften, waited more than a year before issuing the specific segregation decree.[5] That infamous decree recognized that each locality needed to cultivate its own solutions and remanded to the District Courts to enter orders "necessary and proper" to admit the students to schools in a nondiscriminatory manner "with all deliberate speed."[6]

The NAACP Legal Defense Fund that brought *Brown* to the Supreme Court successfully utilized the judicial process to implement widespread social change.[7] In the over fifty years since Chief Justice Earl Warren read the *Brown* decision, it has been deemed "the most

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1 Brown v. Bd. of Educ., 347 U.S. 483, 495 (1954).

2 RICHARD KLUGER, SIMPLE JUSTICE: THE HISTORY OF *BROWN V. BOARD OF EDUCATION* AND BLACK AMERICA'S STRUGGLE FOR EQUALITY 705, 711 (First Vintage Books 2004).

3 *Id.* at 712.

4 *See id.*

5 *Id.* at 717.

6 Brown v. Bd. of Educ. (Brown II), 349 U.S. 294, 301 (1955).

7 *Case: Landmark: Brown v. Board of Education*, NAACP LEGAL DEF. AND EDUC. FUND, INC., https://www.naacpldf.org/case-issue/landmark-brown-v-board-education/ (last visited Feb. 20, 2021) [hereinafter NAACP].

significant case on race in America's history."[8] While plenty of work remains to fully realize the promise of integrated, equal educational opportunities for all,[9] "[*Brown*'s] impact has been felt by every American."[10]

The *Brown* decision accelerated movement toward justice in one societal area, but the government continues to subject citizens of the United States to injustice in other areas. In September 2015, twenty-one youth plaintiffs, Earth Guardians, and a representative of future generations filed a complaint in the U.S. District Court for the District of Oregon to attempt to force action in an area of continuing injustice: climate change.[11] Similar to the plaintiffs in *Brown*, the young plaintiffs in *Juliana v. United States* contended that government action violated their constitutional rights.[12] Specifically, their lawsuit sought to end the "government's affirmative actions that cause climate change"[13] and presented scientific evidence proving that the government's fossil fuel subsidies contribute directly to climate change.[14] But the Ninth Circuit claimed that the court could not issue such relief.[15] Despite being nearer to "the eve of destruction,"[16] the court did nothing to curtail climate change.[17]

The *Juliana* decision—like the *Brown* decision—will impact every American's life. Unfortunately, rather than initiating a positive societal change like *Brown*, the *Juliana* decision will produce negative impacts if allowed to stand. Climate change will continue to ravage the environment and force citizens to deal with adverse health and economic consequences.[18] The anticipated changes to the environment include more wildfires; "changes in surface, atmospheric, and oceanic temperatures; melting glaciers; diminishing snow cover; shrinking sea ice; rising sea levels; ocean acidification; and increasing atmospheric

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[8] CHARLES J. OGLETREE, JR., ALL DELIBERATE SPEED: REFLECTIONS ON THE FIRST HALF CENTURY OF *BROWN V. BOARD OF EDUCATION* 13 (2004).

[9] *See id.* at 14.

[10] NAACP, *supra* note 7.

[11] First Amended Complaint for Declaratory & Injunctive Relief at 1–2, Juliana v. United States, 947 F.3d 1159 (9th Cir. 2020) (No. 6:15-cv-01517-TC).

[12] *Legal Actions: Juliana v. United States*, OUR CHILD.'S TR., https://www.ourchildrenstrust.org/juliana-v-us (last visited Oct. 8, 2021).

[13] *Id.*

[14] Juliana v. United States, 947 F.3d 1159, 1166–67 (9th Cir. 2020).

[15] *Id.* at 1175.

[16] *Id.* at 1164.

[17] *See id.* at 1164–65.

[18] *See* 1 U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE SCIENCE SPECIAL REPORT: FOURTH NATIONAL CLIMATE ASSESSMENT Volume I 10–11 (D.J. Wuebbles et al. eds., 4th ed. 2017).

water vapor."[19] These environmental impacts have dangerous ramifications for human health.[20] Wildfires will cause more respiratory and cardiovascular hospitalizations and thousands of deaths from deteriorating outdoor and indoor air quality.[21] Higher temperatures and decreased snow cover will lead to more "frost-free days," causing further complications from asthma and increasing trips to the emergency room.[22] Extreme heat will result in people dying "from heat stroke and related conditions, but also from cardiovascular disease, respiratory disease, and cerebrovascular disease."[23] Air pollution from greenhouse gases will cause diminished lung function, more instances of asthma, and premature death.[24] Dangerous health effects will plague citizens as climate change intensifies and will continue to plague them even after emissions begin to decrease.[25]

This Comment will examine the scientific evidence presented in *Juliana v. United States* compared to that in *Brown v. Board of Education* to discuss the court's ability to provide relief based on that scientific evidence. Specifically, this Comment will argue that the *Juliana* Court had all the scientific evidence necessary to issue a wide-sweeping proclamation like that in *Brown*. Part II outlines and compares the decision and reasoning behind *Brown* and *Juliana*, respectively. Part III lays out the scientific evidence presented in both *Brown* and *Juliana*. Part IV details the general attitude that courts have taken towards scientific evidence and contrasts how the courts in *Brown* and *Juliana* chose to treat such evidence. Part V urges the Supreme Court to take the case and overturn the Ninth Circuit's decision. While this Comment will focus on the United States, the impact of the Court's decision will be felt globally because the United States' inaction and continued emissions of

19 *Id.* at 10.

20 *See* U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 221 (Jerry M. Melillo et al. eds., 2014), nca2014.globalchange.gov [hereinafter NCA].

21 *Id.* at 223. "[T]he extent of warming has not been uniform." *Id.* at 8. The impacts are also not felt equally. Somini Sengupta, *Wildfire Smoke is Poisoning California's Kids. Some Pay a Higher Price.*, N.Y. TIMES (Nov. 26, 2020), https://www.nytimes.com/interactive/2020/11/26/climate/california-smoke-children-health.html (comparing the impact of wildfire smoke on children's health based on location, pre-existing conditions, and ability to relocate, among other factors).

22 NCA, *supra* note 20, at 222.

23 *Id.* at 224.

24 *Id.* at 222.

25 *Id.* at 8 (noting that continued higher emissions will likely result in a five-to-ten-degree temperature rise by the end of the century while reducing emissions will still result in a three-to-five-degree temperature rise).

greenhouse gases will expedite climate change, leading to increased harm worldwide.[26]

II. THE DECISIONS

Brown and *Juliana* both constitute impact litigation lawsuits brought with the intent to accomplish broad societal change.[27] Impact litigation cases take a rights-based approach to remedy injustices and to initiate the structural changes required to prevent others from suffering those same injustices.[28] Planned impact litigation requires a long-term strategy and an "ideal client" whose remedy will put into motion the envisioned objectives.[29] The *Brown* and *Juliana* lawyers both found "ideal clients" who would allow courts to extrapolate their remedies to other similarly situated citizens.[30] But while the *Brown* lawyers realized their goal through a favorable decision, the *Juliana* lawyers encountered a court content with maintaining the status quo.

A. Brown v. Board of Education

Brown v. Board of Education constituted impact litigation because of its profound societal impact. *Brown* directly challenged *Plessy v. Ferguson*, a case from nearly sixty years earlier that questioned the constitutionality of a Louisiana law mandating segregated railway cars.[31] The *Plessy* Court found that segregation "neither abridges the privileges or immunities of the colored man, deprives him of his property without due process of law, nor denies him the equal protection of the laws, within the meaning of the [F]ourteenth [A]mendment."[32] The Court even compared segregated railroad cars to segregated public schools, explaining that the constitutionality of the latter "does not seem to have been questioned."[33] Consequently, the majority in *Plessy* infamously held that separate but equal facilities were constitutional.[34]

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[26] *See id.* at 340 ("Impacts due to climate change will cross community and regional lines, making solutions dependent upon meaningful participation of numerous stakeholders from federal, state, local, and tribal governments, science and academia, the private sector, non-profit organizations, and the general public.").

[27] MACARENA SÁEZ, AM. UNIV. WASH. COLL. L.: CTR. FOR HUMAN RIGHTS & HUMANITARIANISM, IMPACT LITIGATION: AN INTRODUCTORY GUIDE 1 (2016).

[28] *Id.*

[29] *Id.*

[30] *Id.*

[31] Plessy v. Ferguson, 163 U.S. 537, 540 (1896).

[32] *Id.* at 548.

[33] *Id.* at 550–51.

[34] *Id.*

The NAACP began its attack on the holding of *Plessy v. Ferguson* with litigation concerning graduate school segregation, which brought favorable outcomes early in its assault but never went so far as to overrule *Plessy*.[35] After the NAACP won these cases, they sought "to apply the Supreme Court's new understanding of inherent inequality to elementary and secondary education" and coax the Court to overturn *Plessy*.[36] They consolidated cases from different jurisdictions to ensure that an unusual set of facts would not prevent widespread applicability, yet included enough commonalities to allow for a coordinated strategy.[37]

Brown consisted of four suits brought in four different states—Kansas, South Carolina, Virginia, and Delaware—by black elementary- and high-school-age children challenging the constitutionality of segregation in public schools.[38] The plaintiffs petitioned the U.S. Supreme Court to help them gain admission to the schools that white children attended in their respective neighborhoods.[39] The plaintiffs contended that segregation deprived them of their Fourteenth Amendment right to equal protection because "segregated public schools are not 'equal' and cannot be made 'equal.'"[40]

In *Brown*, the Supreme Court faced the issue of whether *Plessy v. Ferguson*'s "separate but equal" doctrine applied to public education.[41] Since the "tangible" factors of the schools were equal or were being equalized, the opinion—authored by Chief Justice Warren—analyzed the "effect of segregation itself on public education."[42] The Court began

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[35] *See* ROBERT J. COTTROL, RAYMOND T. DIAMOND & LELAND B. WARE, *BROWN V. BOARD OF EDUCATION*: CASTE, CULTURE, AND THE CONSTITUTION 115 (2003).

[36] *Id.*

[37] *Id.* at 119.

[38] Brown v. Bd. of Educ., 347 U.S. 483, 486–87 (1954). In Kansas, the district court in *Brown v. Board of Education* found that segregation has a detrimental effect on black children but upheld the law because the black and white schools were "substantially equal" in their physical facilities and quality of teachers. *Id.* at 486 n.1. In South Carolina, the court in *Briggs v. Elliott* found that the schools that black children attended were inferior to those of white children and ordered their equalization. *Id.* In Virginia, the court in *Davis v. County School Board* also found that the schools that black children attended were inferior and ordered them to remove the inequality. *Id.* at 487 n.1. In Delaware, the court in *Gebhart v. Belton* found the facilities and teacher qualifications inferior and that "segregation itself results in an inferior education" but merely ordered equalization and allowed the black children admission to the white schools while equalization took place. *Id.* at 487–88 n.1.

[39] *Id.* at 487–88.

[40] *Id.* at 488.

[41] *Brown*, 347 U.S. at 492.

[42] *Id.* at 492 (noting some example of "tangible" factors: "buildings, curricula, [and] qualifications and salaries of teachers").

its analysis by considering the Fourteenth Amendment and its "intended effect on public education."[43] The Court quickly dismissed this approach, however, because public education was not firmly established at the time that Congress passed the Fourteenth Amendment in 1868.[44] Since that time, legislatures enacted compulsory attendance laws, catapulting education to one of the most important functions of local government by the 1950s.[45] The Court posited that "it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education."[46]

After Chief Justice Warren established the importance of public education in America, he presented the real issue: Does segregation deprive black children of equal educational opportunities?[47] The Court answered this question in the affirmative by exploring three sources of evidence documenting the effects of segregation in education.

First, the Court considered six cases that ruled on equal educational opportunities in public schools, focusing particularly on the earlier NAACP cases involving graduate schools.[48] In *Sweat v. Painter*, the Court held that a segregated law school "could not provide [black students] equal educational opportunities."[49] In *McLaurin v. Oklahoma State Regents*, the Court examined "intangible considerations," such as the "ability to study, to engage in discussions and exchange views with other students, and, in general, to learn his profession," and ultimately decided that segregation denied such opportunities.[50] The Court in *Brown* further asserted that such findings applied "with added force to children" of elementary- and high-school-age.[51]

Second, the Court cited the findings of the district courts below that segregation has detrimental effects on children.[52] Specifically, in the Kansas case, the court found that "[s]egregation of white and colored children in public schools has a detrimental effect upon the colored children."[53] Similarly, the Delaware judge found the educational

43 *Id.* at 489–90.
44 *Id.*
45 *Id.* at 493.
46 *Id.*
47 *Brown*, 347 U.S. at 493.
48 *See id.* at 491–92.
49 *Id.* at 493.
50 *Id.* (quoting McLaurin v. Okla. State Regents, 339 U.S. 637, 641 (1950)).
51 *Id.* at 494.
52 *Id.*
53 *Brown*, 347 U.S. at 294.

opportunities offered to black children "substantially inferior" to those presented to white children.[54]

Third, the Court explicitly rejected the psychological findings in *Plessy* and cited seven social science papers and books in footnote eleven to support this claim.[55]

The Supreme Court in *Brown* ultimately held that "in the field of public education the doctrine of 'separate but equal' has no place. Separate educational facilities are inherently unequal."[56] The Court recognized the decision's far-reaching implications and that the remedy required "considerable complexity."[57] Accordingly, the Court allowed additional time before issuing a remedy so that all parties could provide input on the final decree.[58] The Court published its remedy a year later, in *Brown II*, on May 31, 1955.[59] The decision declared that "[a]ll provisions of federal, state, or local law requiring or permitting such discrimination must yield" to the principle that "racial discrimination in public education is unconstitutional" and remanded to the lower courts to create equitable decrees.[60] The Court acknowledged that it might take time to carry out the ruling effectively but urged lower courts to act "with all deliberate speed."[61]

The NAACP Legal Defense Fund credits the *Brown* decision as "a major catalyst for the civil rights movement," which made desegregation efforts throughout the country possible.[62] The decision gave hope to millions of Americans oppressed by the racial caste system that American governments implicitly or explicitly accepted.[63]

B. Juliana v. United States

Juliana v. United States, like *Brown v. Board of Education*, constitutes impact litigation because its goal—phasing out fossil fuels—has immense societal implications. Our Children's Trust filed the lawsuit in September 2015 on behalf of twenty-one youth plaintiffs from ten different states.[64] The plaintiffs came from states profoundly

54 *Id.* at 494 n.10.
55 *Id.* at 494–95 n.11.
56 *Id.* at 495.
57 *Id.*
58 *Id.* at 495–96.
59 *Brown II*, 349 U.S. 294 (1955).
60 *Id.* at 298.
61 *Id.* at 300–01.
62 NAACP, *supra* note 7.
63 *Id.*
64 *Juliana v. United States: Meet the Youth Plaintiffs*, OUR CHILD.'S TR., https://www.ourchildrenstrust.org/federal-plaintiffs/ (last visited Oct. 8, 2021).

impacted by climate change, [65] which allowed the lawyers to present evidence of adverse environmental effects occurring throughout the country. This decision parallels *Brown*, where the lawyers chose plaintiffs from different school districts in different states who experienced slightly different circumstances to ensure a ruling with widespread applicability.[66] Additionally, both cases litigate broad constitutional rights by young plaintiffs looking to overturn policies with long-term negative effects.

In *Juliana*, the plaintiffs were comprised of three different groups: young citizens, an environmental organization,[67] and "a representative of future generations."[68] They filed a complaint seeking an order for the government to develop a plan to "phase out fossil fuel emissions and draw down excess atmospheric CO2 [sic]."[69] The plaintiffs brought a number of claims in the district court, but only three survived the motion to dismiss for consideration at the appellate level.[70] The district

[65] *Id.* (noting that the plaintiffs reside in Oregon, Colorado, Florida, New York, Hawaii, Arizona, Louisiana, Washington, Alaska, and Pennsylvania).

[66] *See supra*, Section II.A.

[67] *Our Story*, https://www.earthguardians.org/our-story, EARTH GUARDIANS (last visited Sept. 3, 2021). Earth Guardians is "an intergenerational organization" with youth at the forefront that "trains diverse youth to be effective leaders in the environmental, climate and social justice movements across the globe." *Id.*

[68] Juliana v. United States, 947 F.3d 1159, 1164 (9th Cir. 2020); *see* Oliver Milman, *Ex-Nasa Scientist: 30 Years On, World is Failing 'Miserably' to Address Climate Change*, GUARDIAN (June 19, 2018), https://www.theguardian.com/environment/2018/jun/19/james-hansen-nasa-scientist-climate-change-warning. Jim Hansen brings this lawsuit as a guardian for future generations. This former NASA climate scientist first testified to Congress in 1988 "with 99% confidence" that human activity caused global warming. Since this testimony, Hansen retired from NASA and became an activist, urging the government to take action to combat global warming before it becomes too late. *Id.*

[69] *Juliana*, 947 F.3d at 1164–65.

[70] *Id.* at 1165. After the plaintiffs filed the complaint, the fossil fuel industry sought to join the government as defendants to have the case dismissed. *Juliana v. United States: Major Court Orders and Filings*, OUR CHILD.'S TR., https://www.ourchildrenstrust.org/court-orders-and-pleadings/ (last visited Oct. 8, 2021). On April 8, 2016, U.S. Magistrate Judge Thomas Coffin recommended denial of the motion to dismiss. *Legal Actions: Juliana v. United States*, OUR CHILD.'S TR., https://www.ourchildrenstrust.org/juliana-v-us (last visited Oct. 8, 2021). Judge Ann Aiken on the U.S. District Court for the District of Oregon adopted Judge Coffin's recommendation on November 10, 2016, and denied the motions to dismiss. *Id.* The government filed an interlocutory appeal of the motion to dismiss, which Judge Aiken denied on June 8, 2017. *Id.* Before the trial began, Judge Coffin released the fossil fuel industry defendants, the Ninth Circuit Court of Appeals stayed the district court proceedings, and the government filed a writ of mandamus pertaining to the denial of the motion to dismiss. *Id.* The Ninth Circuit rejected the "drastic and extraordinary" writ of mandamus. *Id.* The government then filed an application for a stay with the U.S. Supreme Court and requested the Court to review the case. *Id.* The Court refused both requests, stating that it was "premature" to review the case before the district court reviewed the facts. *Id.*

court concluded that the plaintiffs stated a viable claim that the government violated their Fifth Amendment due process right to a "climate system capable of sustaining human life."[71] Additionally, the court found a viable "danger-creation due process claim" from the "government's failure to regulate third-party emissions," and a viable public trust claim.[72] The Ninth Circuit Court of Appeals granted the government's petition for permission to appeal and focused its analysis on whether the plaintiffs had standing and, specifically, whether their claims were redressable.[73]

The Ninth Circuit began its analysis by recognizing the plaintiff's evidence—an extensive scientific record that established that "climate change is occurring at an increasingly rapid pace."[74] The court acknowledged that "[c]opius expert evidence establishes" that fossil fuel combustion leads to climate change and that the federal government has known about the risks associated with fossil fuel emissions since as early as 1965.[75]

The Ninth Circuit focused on whether the plaintiffs had Article III standing to bring their claims, which requires (1) "a concrete and particularized injury that (2) is caused by the challenged conduct and (3) is likely redressable by a favorable judicial decision."[76] The court confirmed that at least some of the plaintiffs claimed concrete and particularized injuries adequate under Article III.[77] The plaintiffs also satisfied the causation requirement because between 1850 and 2012, the United States accounted for 25 percent of fossil fuel emissions worldwide and about 25 percent of those emissions received authorization from the federal government.[78] Therefore, the plaintiffs presented a genuine factual dispute regarding whether the government played a substantial role in causing the plaintiffs' injuries.[79] Consequently, the court spent a majority of its analysis on the third

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71 *Juliana*, 947 F.3d at 1165.

72 *Id.*

73 *Id.* at 1164, 1168.

74 *Id.* at 1166.

75 *Id.* at 1166 (noting that the evidence must be reviewed in the light most favorable to the plaintiffs on the appeal of a motion to dismiss).

76 *Juliana*, 947 F.3d at 1168.

77 *Id.* (specifying examples of a plaintiff "forced to leave her home because of water scarcity" and another who was forced to "evacuate his coastal home multiple times because of flooding").

78 *Id.* at 1169.

79 *Id.*

requirement—whether an Article III court may redress the plaintiffs' injuries.[80]

"'Redressability' concerns whether a federal court is capable of vindicating a plaintiff's legal rights."[81] The *Juliana* plaintiffs requested "an injunction requiring the government not only to cease permitting, authorizing, and subsidizing fossil fuel use, but also to prepare a plan subject to judicial approval to draw down harmful emissions."[82] The district court recognized that this goal requires more than the government ceasing to promote fossil fuels,[83] but still found redressability satisfied because the relief would reduce emissions, thereby *slowing* the harmful effects of climate change.[84]

On appeal, the plaintiffs conceded that their requested redress would not solve climate change entirely, but they maintained that it would mitigate their injuries.[85] The Ninth Circuit expressed skepticism toward this claim but proposed that even if the court could provide actual redress, the "competing social, political, and economic forces" must be reserved to the power of the Legislature.[86] Separation of powers required that the court defer to Executive or Legislative judgments on such complex matters.[87] Alternatively, the court posited that even if it did issue a remedy, it would require extensive court supervision to ensure compliance, which could potentially upset the balance of power between the courts and other branches of

[80] *Id.* at 1169–70. The Supreme Court has articulated that the purpose of issuing a remedy to correct a societal injustice includes prohibiting new violations, as well as "eliminat[ing] the continuing effects of past violations." Paul Gewirtz, *Remedies and Resistance*, 92 YALE L.J. 585, 589 (1983). But other times the court merely tries to prohibit past effects to "the greatest possible degree." *Id.* The Court in *Brown II* required an imperfect injunctive remedy—"delayed desegregation"—which the public met with widespread resistance, demonstrating the challenges of effectuating injunctive relief. *Id.* at 609. Simply crafting an appropriate remedy takes time and necessarily delays or even prohibits justice for some members of the class facing the injustice. *See id.* at 614. In fact, hundreds of desegregation orders remain open throughout the United States today, over fifty years after *Brown*. *See* Yue Qiu & Nikole Hannah-Jones, *A National Survey of School Desegregation Orders*, PROPUBLICA (Dec. 23, 2014), https://projects.propublica.org/graphics/desegregation-orders.

[81] *Juliana*, 947 F.3d at 1181 (Staton, J., dissenting).

[82] *Id.* at 1170 (noting that this relief would "enjoin the Executive from exercising discretionary authority expressly granted by Congress" and "enjoin Congress from exercising power expressly granted by the Constitution").

[83] *Id.* at 1170–71.

[84] *Id.* at 1171.

[85] *Id.*

[86] *Id.* at 1171–72 (quoting Collins v. City of Harker Heights, 503 U.S. 115, 128–29 (1992).

[87] *Juliana*, 947 F.3d at 1172.

government.[88] Therefore, the Ninth Circuit held that the plaintiffs did not satisfy the constitutional Article III standing requirement and remanded with instructions for the district court to dismiss, urging the plaintiffs to make their case to the political branch or to the electorate.[89]

Judge Staton wrote a passionate dissent to the Ninth Circuit's opinion.[90] She began by declaring that "the government bluntly insists that it has the absolute and unreviewable power to destroy the Nation."[91] She invoked the perpetuity principle, which "prohibits only the willful dissolution of the Republic,"[92] and gives the government "more than just a nebulous 'moral responsibility' to preserve the Nation,"[93] because without it, any liberties that the Constitution protects become meaningless.[94] Given the evidence presented by the plaintiffs, the continued use of fossil fuels will cause irreversible changes, presenting an "existential threat" to the Nation never before seen, which the government actively endorses.[95] Judge Staton acknowledged that the right at issue concerns stopping climate change from proceeding beyond a tipping point from which the Nation may not return—*not* stopping climate change altogether.[96] Consequently, she would hold that "under Article III, a perceptible reduction in the advance of climate change is sufficient to redress a plaintiff's climate change-induced harms."[97]

Judge Staton further invoked the power of judicial review to thwart the majority's concerns about abuse of the separation of powers, insisting that federal courts must construct the proper relief to legal wrongs and instruct other branches on the limits of their constitutional power.[98] She rebuked the majority's invocation of the political question doctrine because courts have instituted "widespread, programmatic changes in government functions" in the past, citing *Brown v. Board of*

88 *See id.*

89 *Id.* at 1175.

90 *See id.* at 1175–91 (Staton, J., dissenting).

91 *Id.* at 1175.

92 *Id.* at 1179.

93 *Juliana*, 947 F.3d at 1177.

94 *Id.* at 1178.

95 *See id.* at 1180 ("[I]t should come as no surprise that the Constitution's commitment to perpetuity only now faces judicial scrutiny, for never before has the United States confronted an existential threat [climate change] that has not only gone unremedied but is actively backed by the government.").

96 *Id.* at 1182.

97 *Id.*

98 *Id.* at 1184.

Education, among other notable court decisions.[99] The dissent proclaims that "resolution of this action requires answers only to scientific questions, not political ones."[100] "Plaintiffs' claims are based on science, specifically, an impending point of no return. If plaintiffs' fears, backed by the government's own studies, prove true, history will not judge us kindly."[101]

III. SCIENTIFIC EVIDENCE IN *BROWN* AND *JULIANA*

The plaintiffs in *Brown* presented social scientific evidence to support their claims, while the plaintiffs in *Juliana* presented natural scientific evidence to support their claims. Although courts may have been reluctant in the past to accept scientific evidence, today, both natural and social science present compelling reasons to issue a remedy in favor of scientific truth. The Ninth Circuit should have taken this approach and used the overwhelming science behind climate change to issue the plaintiffs their requested relief.

A. Brown v. Board of Education *Scientific Evidence*

In the fifty-eight years after *Plessy v. Ferguson*, social scientific studies surrounding segregation emerged that directly contradicted the Court's findings.[102] The Court in *Plessy* proclaimed that segregation by race does not assign a "badge of inferiority" to people of color, but rather that any feeling of inferiority comes from the construction that they themselves assign to it.[103] The *Plessy* Court claimed that "[l]egislation is powerless to eradicate racial instincts, or to abolish distinctions based upon physical differences, and the attempt to do so can only result in accentuating the difficulties of the present situation."[104] Further, the decision proclaimed that "[i]f one race be inferior to the other socially, the [C]onstitution of the United States cannot put them upon the same plane."[105] Today, society understands the blatant falsity of these claims, but when deciding *Brown*, the Court faced a challenge to issue a decision that would persuade the public.

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[99] *Juliana*, 947 F.3d at 1188 (noting the overhaul of prisons in California to uphold the "Constitution's prohibition on cruel and unusual punishment" and racially integrating public schools to uphold the Constitution's guarantee of equal protection).

[100] *Id.* at 1189.

[101] *Id.* at 1191.

[102] Brown v. Bd. of Educ., 347 U.S. 483, 494 n.11 (1954).

[103] Plessy v. Ferguson, 163 U.S. 537, 551 (1896).

[104] *Id.*

[105] *Id.* at 552.

The lawyers in the early higher education cases predating *Brown* specifically introduced expert psychological testimony to the Court to demonstrate "the importance to the educational experience of intangibles that were incapable of objective measurement."[106] In *Brown*, the NAACP used "psychologists, social scientists, and other experts" to demonstrate the psychological injuries of segregation, to force the Justices to grapple with the realities of segregation, and to stop them from engaging in "spurious rationalizations" of the Fourteenth Amendment.[107]

Two of the *Brown* district court judges concluded that segregation in public schools had a detrimental effect on black children, but either ignored that finding in their final decisions, or their decisions did not rest upon that finding explicitly.[108] For example, *Brown v. Board of Education* in the U.S. District Court for the District of Kansas found that segregation in public schools did have a detrimental effect on black children.[109] The court, however, denied relief because it also found that the physical facilities, curricula, and the qualifications of teachers were "substantially equal."[110] The Delaware Court of Chancery in *Gebhart v. Belton* found that "segregation itself results in an inferior education for Negro children."[111] The court did not rely on this finding to admit the black children into the schools attended by white children.[112] Rather, the court rested its decision on finding that the schools that black children attended had inferior physical accommodations and inferior teacher training.[113] The court, therefore, preserved the possibility of re-segregating the schools upon equalization of the facilities.[114]

The Supreme Court, however, did rest its holding on the negative psychological effects of segregation. The Court declared that "[w]hatever may have been the extent of psychological knowledge at the time of *Plessy v. Ferguson*, this finding [a detrimental effect on black children] is amply supported by modern authority."[115] Footnote eleven in the *Brown* decision lists seven social science sources that explore these harmful psychological effects of segregation.[116] The declaration in

106 COTTROL, *supra* note 35, at 122.
107 *Id.* at 123.
108 Brown v. Bd. of Educ., 347 U.S. 483, 486 n.1 (1954).
109 *Id.*
110 *Id.*
111 *Id.*
112 *Id.*
113 *Id.*
114 *Brown*, 347 U.S. at 486 n.1.
115 *Id.* at 494.
116 *Id.* at 494–95 n.11.

Plessy that any inferiority that black people felt came from the construction that they put on themselves was exposed for its incredible ignorance and willful blindness to the actual state of the world. The next seven sources listed allowed the Court to declare the very premise of *Plessy* untrue and allowed for a unanimous judicial decree in *Brown*.

A famous study by social psychologist Kenneth Clark is the first source cited in footnote eleven.[117] He found that black children in segregated schools experienced feelings of self-rejection.[118] In the study, Clark presented children with four dolls: two brown and two white.[119] He asked the children to choose a doll based on various criteria: who they would like to play with, who was nice, who was bad, and what doll was a nicer color.[120] Black children consistently chose white dolls as "nice" and the dolls with whom they preferred to play, and they designated the brown dolls as "bad."[121] Another test gave children objects to color—such as a leaf or an apple—and if they used the correct color, the study moved on to the next stage.[122] Black children tasked with coloring themselves most often used white, yellow, or some other non-skin color, like red or green.[123] These results reinforced the conclusion that black children felt inferior and rejected their own race when exposed to segregation.

The second source, *The Fact-Finding Report of the Midcentury White House Conference on Children and Youth*, outlined requirements "for the healthy development of the whole personality."[124] The report found that if others do not treat a child with respect, he learns that he and others like him are not worthy of respect.[125] Children may also develop feelings of hatred toward those who disrespect them.[126] After laying out these general findings, the report applied them specifically to schools.[127] Since a school strives to enable children to understand their world better, "the school has a role which is not only strategic but

117 *Id.* at 494–95 n.11.

118 COTTROL, *supra* note 35, at 125.

119 *Id.* at 124.

120 *Id.*

121 *Id.*

122 *Id.*

123 *Id.* at 124–25.

124 HELEN LELAND WITMER & RUTH KOTINSKY, PERSONALITY IN THE MAKING: THE FACT-FINDING REPORT OF THE MIDCENTURY WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH 237 (Harper & Brothers, Publishers 1952).

125 *Id.*

126 *Id.*

127 *See id.* at 257–58.

indispensable in the development of the healthy personality."[128] A child's experience in school can "either enhance or undermine whatever basic sense of trust, of independence, and of initiative the child brings with him from his earlier life at home."[129] A conflict exists between the democratic tradition that schools generally promote and the antidemocratic practices, such as segregation, that they often adopt.[130]

The third and fourth sources detail a survey exploring the psychological effects of enforced legal segregation on both the group being segregated and the group establishing the segregation.[131] This study aimed to publish information that the Supreme Court could eventually use and, therefore, limited itself to the issue relevant in a case like *Brown*: whether enforced segregation has detrimental effects "when equal facilities are provided for the segregated groups."[132] Deutscher and Chien distributed a questionnaire to social scientists—anthropologists, psychologists, and sociologists—and received a high response rate from their targeted population.[133] The paper begins with an in-depth analysis of how the authors conducted the study, making sure to note that respondents could choose to remain anonymous, which served to bolster the study's persuasiveness and legitimacy.[134] Ninety percent of social scientists agreed that segregation was harmful, and of that 90 percent, only 10 percent indicated that they did not know of a "positive basis for their opinions."[135] The study then explained how segregation specifically affects black school children developmentally: the children show psychological reactions related to status differences of segregation long before they appreciate differences in physical facilities.[136] One psychologist pointed to the "ambiguity" created in the United States, which boasts itself as a free and equal society but then turns around and subordinates an entire class of people.[137] This source

128 *Id.* at 257.

129 *Id.*

130 *Id.* at 258 (noting that "the antidemocratic end of each conflict is harmful to personality").

131 Max Deutscher & Isidor Chien, *The Psychological Effects of Enforced Segregation: A Survey of Social Science Opinion*, 26 J. PSYCH. 259, 259 (1948); Isidor Chein, *What are the Psychological Effects of Segregation Under Conditions of Equal Facilities?*, INT'L J. OP. AND ATTITUDE RSCH. 3 (1949), *reprinted in* 16 INT'L J. PUB. OP. RSCH. 1, 84 (2004).

132 *See id.* at 259–60.

133 *Id.* at 262.

134 *See id.* at 260–64.

135 Isidor Chein, *What are the Psychological Effects of Segregation Under Conditions of Equal Facilities?*, INT'L J. OP. AND ATTITUDE RSCH. 3 (1949), *reprinted in* 16 INT'L J. PUB. OP. RSCH. 1, 84 (2004).

136 *Id.* at 85.

137 Deutscher, *supra* note 131, at 272.

revealed that the field of social science understood that segregation created feelings of inferiority and detrimental effects in black school children.

The fifth source explores the social losses associated with segregation through the lens of an inadequately educated population, which not only hurts the individuals deprived of the education but also the Nation as a whole through the costs of a poorly trained workforce.[138] Brameld describes education as the "greatest loser" of discrimination because "children and adults of different races, religions, [and] nationalities fail to enrich one another" and "cultural learning is narrowed and distorted."[139] "Social neurosis" exemplifies another deleterious effect of segregation, as parents of white children encourage "frustration and aggression" in their children, which acts as another impediment for black children.[140] The numerous costs of desegregation ultimately lead to "concomitant learnings" that "injure the majority groups of America even more than they do the minorities" as children develop prejudice, distrust, and guilt.[141] The article ends with a call to action to combat these negative social costs, including challenging the constitutionality of segregated schools up to the Supreme Court: a goal realized by *Brown*.[142]

The Court points to two chapters in the sixth source—*The Negro in the United States*—that further describe the general effects of discrimination within society.[143] The first chapter that the Court noted proclaims that "separate but equal educational and other facilities has never worked out in practice."[144] Such limitations have oppressed black children, and such oppression followed them into adulthood, limiting their role in the "economic and social life of the [N]ation."[145] Further, the isolation between the two races caused each side to accept social stereotypes of the other, often perpetuating the idea of black "intellectual inferiority" while exalting "emotional gifts."[146] These misunderstandings and stereotypes led to a black inferior minority status within the United States, although the book explains that

138 Theodore Brameld, *Educational Costs*, *in* DISCRIMINATION AND NATIONAL WELFARE 44 (MacIver ed., 1949).

139 *Id.* at 45.

140 *Id.*

141 *Id.*at 46–47.

142 *Id.* at 47.

143 E. FRANKLIN FRAZIER, THE NEGRO IN THE UNITED STATES 674 (1949).

144 *Id.*

145 *Id.* at 677.

146 *Id.*

generally, black people do not think of themselves as "possessing a different culture from whites."[147]

Finally, the Court cites *An American Dilemma: The Negro Problem and Modern Democracy*.[148] This book provides an extensive social analysis of the problematic race relations permeating all aspects of society in the United States during the early twentieth century.[149] The author presents evidence that the education available to black children is "undernourished and inadequate" and that purging the Nation of inequality in public education is essential for the American economy and economic policy.[150] "Segregation is usually not motivated by financial reasons but as a precaution against social equality."[151] America deems education the best way to improve society and the best way to advance social status.[152] Many black children, however, become frustrated with the educational system and drop out at higher rates than their white counterparts.[153] Consequently, the inadequate educational opportunities that the public education system offers black children hold them back and make it harder for them to advance their social position.[154]

The seven sources listed in footnote eleven in *Brown v. Board of Education* provide the scientific evidence necessary for the historical holding. The Court amplified what social scientists, psychologists, and sociologists already knew: segregated schools harm black school children.

B. Juliana v. United States *Scientific Evidence*

The United States has a complicated relationship with climate change—often splitting people among political lines—and some citizens remain skeptical towards the scientific evidence that experts use to establish its existence or severity.[155] While climate change skepticism may continue in the United States politically, the judiciary has generally

147 *Id.* at 680–81.

148 Brown v. Bd. Of Educ., 347 U.S. 483, 494–95 n.11 (1954).

149 *See* 1 GUNNAR MYRDAL, AN AMERICAN DILEMMA: THE NEGRO PROBLEM AND MODERN DEMOCRACY, at liii–lv (1944).

150 *Id.* at 906–07.

151 *Id.* at 901.

152 *Id.* at 882–83.

153 *Id.* at 884.

154 *Id.*

155 *See* Maria L. Banda, *Climate Science in the Courts: A Review of U.S. and International Judicial Pronouncements*, ENV'T L. INST. 1 (2020).

acknowledged the legitimacy of climate change science and that global warming's changes will have future negative impacts.[156]

In *Juliana*, the plaintiffs established that climate change is occurring at an increasing pace and that fossil fuel combustion is causing this increase.[157] They submitted hard scientific evidence that proves that fossil fuel emissions account for "most of the increase in atmospheric CO_2," and this increased CO_2 constitutes the "main cause of global warming."[158] Absolute amounts of CO_2 continue to rise, and the rate of increase of CO_2 continues to rise as well—currently sitting at nearly twice the rate as when humans first recorded it.[159] This CO_2 has detrimental effects on Americans throughout the United States, although the exact adverse effects may differ.[160] Wildfire season has been dramatically affected—scientists documented that the wildfire season grew by eighty-seven days in 2006 compared to the 1980s, with four times the number of large fires and six times the number of acres burned.[161] Climate change exacerbated the 2017 Atlantic hurricane season, particularly in the Gulf of Mexico, where storms were "abnormally strong."[162] Dr. James Hansen submitted evidence that showed the projected impacts of rising sea levels in six states that will either flood or completely impact the livability of homes in those areas.[163] The hottest years since record-keeping began in the United States have all occurred in the past decade, and "each year since 1997 has been hotter than the previous average."[164]

In addition to general evidence of the existence of anthropogenic climate change, the *Juliana* plaintiffs offered specific evidence that the government directly contributes to the CO_2 released into the atmosphere and has known of its dangers for decades.[165] The federal government leases over "five million acres of National Forest lands" to develop "oil, natural gas, coal, and phosphate," and twenty-seven million acres of the Outer Continental Shelf for oil and gas.[166] The government

156 *Id.* at 1, 3 (calling climate science "the ultimate *lingua franca* across jurisdictions").

157 Juliana v. United States, 947 F.3d 1159, 1164 (9th Cir. 2020).

158 Juliana v. United States, 339 F. Supp. 3d 1062, 1089 (D. Or. 2018).

159 *Id.*

160 *Id.* at 1087–88 (noting the various concrete injuries alleged by the plaintiffs, which include personal injuries and emotional trauma, among others, caused by extreme weather events, flooding, climate destabilization, and ocean acidification).

161 *Id.* at 1089 n.8.

162 *Id.* at 1089 (noting Hurricanes Harvey, Irma, and Maria).

163 *Id.* at 1089–90. The six states are Louisiana, Oregon, Washington, Florida, New York, and Hawaii.

164 *Juliana*, 947 F.3d at 1166.

165 *Id.* at 1164.

166 *Juliana*, 339 F. Supp. 3d at 1092.

explicitly authorized the depletion of the country's carbon sequestration capacity: the "Department of Agriculture authorized the harvest of 525,484,148 billion board feet of timber from federal land," and the government "permit[s] livestock grazing on over 95 million acres of National Forest lands in 26 states."[167] The plaintiffs submitted many of the government's own reports into evidence, including the *Fourth National Climate Assessment* developed by the National Aeronautics and Space Administration ("NASA") and the National Oceanic and Atmospheric Administration ("NOAA").[168] The Johnson Administration knew about the harmful effects of CO_2 emissions, warning as early as 1965 that they could cause "significant changes to climate, global temperatures, sea levels, and other stratospheric properties."[169] The Environmental Protection Agency ("EPA") issued a report in 1983 that projected a two-degree Celsius increase in temperature by 2040 and warned "that a 'wait and see' carbon emissions policy was extremely risky."[170] The EPA urged the government to act in the 1990s to reduce fossil fuel emissions, but these emissions have continued to climb ever since.[171]

The Answer provided by the federal defendants agreed with many of the plaintiffs' key factual and scientific evidence.[172] Among the numerous concessions, the government acknowledged that for over fifty years, federal government officials have been aware that higher concentrations of atmospheric CO_2 could cause "long-lasting changes to the global climate" that would have "severe and deleterious effects to human beings, which will worsen over time."[173] The federal government "permit[s], authorize[s], and subsidize[s] fossil fuel extraction, development, consumption, and exportation," which has increased atmospheric CO_2 concentration.[174] "Climate change is damaging human and natural systems, increasing the risk of loss of life, and requiring adaptation on larger and faster scales than current species have successfully achieved in the past, potentially increasing the risk of extinction or severe disruption for many species."[175] Finally, the

167 *Id.*
168 Banda, *supra* note 155, at 61.
169 *Juliana*, 947 F.3d at 1166.
170 *Id.*
171 *Id.*
172 *Juliana*, 339 F. Supp. 3d at 1072.
173 *Id.*
174 *Id.*
175 *Id.*

government conceded that "human activity is likely to have been the dominant cause of observed warming since the mid-1900s."[176]

IV. TREATMENT OF SCIENTIFIC EVIDENCE

The following section explores how courts have traditionally treated scientific evidence, which reveals a history of reluctance. As time progressed towards *Brown* and *Juliana*, however, courts became more accepting of the social and natural sciences. This increased acceptance of scientific evidence should allow the Supreme Court to grant the *Juliana* evidence enough weight to overturn the Ninth Circuit.

A. *How Courts Generally Treat Scientific Evidence*

Courts have historically been reluctant to rely on scientific evidence. "The dominant criticism of law is that it is indeterminate, incoherent and contradictory."[177] As the law seeks to gain more legitimacy, legal realists propose that the law should shift to a more scientific jurisprudence.[178] Early in its history, the Supreme Court did not often recognize a need to verify its factual beliefs.[179] Rather, fact-finding constituted another "form of constitutional argument, used to shape and justify certain outcomes."[180] The Court's inconsistent use of science may result from its use of "normative legal judgment," instead of approaching science as a separate, fact-gathering inquiry.[181] Where the Court interprets an issue as an "empirical question," however, the Court appears more receptive to use scientific facts to support a holding.[182]

"Science has one main advantage over the other sources of interpretation: replicability."[183] Scientists apply the scientific method and take measures to minimize subjective bias in their research, which ultimately must be capable of reproduction by peers.[184] To consider a

176 *Id.*

177 J. Alexander Tanford, *The Limits of a Scientific Jurisprudence: The Supreme Court and Psychology*, 66 IND. L.J. 137, 137 (1990).

178 *Id.*

179 David Faigman, *Normative Constitutional Fact-Finding: Exploring the Empirical Component of Constitutional Interpretation*, 139 U. PA. L. REV. 541, 550 (1991).

180 *Id.* at 556.

181 *Id.* at 549.

182 *See id.* at 567 ("The question presented, therefore, is why did the *Brown* Court believe it helpful to rely on social science in *any* measure, rather than the 'bedrock of a coherent constitutional principle'? The simple explanation, it would seem, is that the equal protection clause, as interpreted by the Court, raises an empirical question.").

183 *Id.* at 606.

184 Deborah M. Hussey Freeland, *Speaking Science to Law*, 25 GEO. INT'L ENV'T L. REV. 289, 292 (2013).

claim objective, the scientific community applies "rigorous application of the standard empirical method," which roots itself in skepticism.[185] The scientific method demands "an ongoing process of refinement and testing" that ultimately produces an improved product over time.[186] Refinement in the social sciences allowed the *Brown* Court to definitively declare the social effects of segregation proclaimed in *Plessy* untrue.

Relying on scientific evidence raises the valid concern that the science may not be factually accurate or may be subject to competing and conflicting interpretations.[187] While such concerns have merit, the ultimate conclusions drawn from the scientific evidence presented in both *Brown* and *Juliana* remain uncontested.[188]

B. *How the* Brown *Court Treated Scientific Evidence*

The *Brown* Court presented scientific evidence succinctly, refused to acknowledge any false prior views, and definitively decided that the evidence demanded action.[189] Using scientific evidence, the Court rejected the reasoning of *Plessy v. Ferguson* in two sentences: "Whatever may have been the extent of psychological knowledge at the time of *Plessy v. Ferguson*, [*Brown*'s] finding is amply supported by modern authority. Any language in *Plessy v. Ferguson* contrary to this finding is rejected."[190] The Court supported this conclusion by using the lower courts' findings, as well as other case findings, only adding novel social science support in footnote eleven.[191] Placing this scientific evidence in a footnote does not diminish the findings, but rather amplifies them when considered within the historical and political environment in which the Chief Justice wrote the opinion. Chief Justice Warren stated,

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185 *Id.* at 303.

186 KENNETH R. FOSTER & PETER W. HUBER, JUDGING SCIENCE: SCIENTIFIC KNOWLEDGE AND THE FEDERAL COURTS 162 (1997).

187 *See* Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 579 (1993). This case reexamined the "standard for admitting expert scientific testimony in a federal trial," replacing the *Frye* test, which required a scientific principle or discovery to have gained "general acceptance" within its field. *Id.* at 582, 586. Rather, the Rules of Evidence created a standard that called for reliable and relevant scientific evidence. *Id.* at 597.

188 *See* Juliana v. United States, 339 F. Supp. 3d 1060, 1072 (D. Or. 2018) (noting that the government's answer "agreed with many of the scientific and factual allegations in the First Amended Complaint").

189 *See* Brown v. Bd. of Educ., 347 U.S. 483, 494–95 (1954) (rejecting any psychological knowledge present in *Plessy* contrary to the social scientific evidence presented within the *Brown* opinion).

190 *Id.*

191 *Id.* at 494–95 n.11.

"It was only a note, after all,"[192] but one must question how much he agreed with his own statement when accounting for the importance of a unanimous decision to give the Court credence in the South. Chief Justice Warren may have understated footnote eleven to maintain the Court's unanimous decision and to avoid placing the Southern Justices in a position where they could not support the decision.[193] Alternatively, the evidence of psychological harm may have helped convince the Southern Justices to agree with the majority by providing a better understanding of the human toll that segregation had on children[194] because they could imagine the school children as their own children and grandchildren.[195]

Perhaps the strongest argument for the importance of the social science presented is that it did not need to be included: the lower court findings, along with the higher education decisions, could have carried the opinion.[196] Chief Justice Warren, however, included this footnote to provide concrete evidence that segregation had harmful effects on children, thereby giving the decision the evidentiary support that it needed to usher in colossal societal change.[197]

The only support that the *Brown* court offered between the real issue presented—"does segregation . . . deprive the children of the minority group of equal educational opportunities"—and its holding was the social science evidence from the district courts and footnote eleven.[198] Therefore, the *Brown* decision ultimately turned on this new scientific evidence and the Court's recognition of the negative psychological effects on children. No other basis was necessary—nor provided—to legitimize the decision.

192 KLUGER, *supra* note 2, at 709. Earl Pollock, Chief Justice Warren's clerk and "one of the closest to the writing of the opinion," noted, "[t]he Chief Justice was saying in effect that we know a lot more now about how human beings work than they did back then and can therefore cast doubt on [Plessy's] preposterous line of argument." *Id.*

193 *Id.*

194 Neil G. Williams, Brown v. Board of Education *Fifty Years Later: What Makes for Greatness in a Legal Opinion?*, 36 LOY. U. CHI. L.J. 177, 188 (2004).

195 *Id.*

196 *See* Faigman, *supra* note 179, at 566 (suggesting that the "studies were not necessary to the holding").

197 *See id.* at 570 (noting that "[i]n *Brown* . . . the issue of segregation's effects had been an integral component of the preceding interpretive tradition" and so "the research cited in *Brown* 'fit' into the interpretive tradition of querying the effects of segregation").

198 *See* Brown v. Bd. of Educ., 347 U.S. 483, 493–95, 494–95 n.11 (1954).

C. *Treatment of Scientific Evidence and the Resulting Remedy:* Juliana *versus* Brown

Contrary to the *Brown* decision, the *Juliana* court acknowledged that the science presented a dire situation, but it did not use this science as a basis for its decision. Judge Ann Aiken, who wrote the trial court opinion, invoked *Marbury v. Madison* when considering a challenge of the government—it is "emphatically the province and duty of the judicial department to say what the law is."[199] She recognized that while courts must remain wary not to overstep their jurisdiction, courts have "an equally important duty to fulfill their role as a check on any unconstitutional actions of the other branches of government."[200]

In the Ninth Circuit, Judge Staton's dissent compared the order required by the *Juliana* case to the desegregation orders issued in the *Brown II* decision.[201] The *Brown II* Court provided reprieve "without exceeding the Judiciary's province."[202] Judge Staton further argued that:

> [T]he Supreme Court was explicitly unconcerned with the fact that crafting relief would require individualized review of thousands of state and local policies that facilitated segregation. Rather, a unanimous Court held that the judiciary could work to dissemble segregation over time while remaining cognizant of the many public interests at stake.[203]

While partially realizing the promise of *Brown* took decades, Judge Staton acknowledged that as "the slow churn of constitutional vindication did not dissuade the *Brown* Court," it likewise should not have dissuaded the *Juliana* court.[204] Judge Staton leaned on the judicial orders in *Brown*, and other cases, to find "judicially discernable standards" to assist the court in providing a remedy.[205]

The remedies sought in *Brown* and *Juliana* both seek institutional change from policies that violate a constitutional right. The plaintiffs in *Brown* were denied admission to their local public schools because white children attended them, and they wanted admission to these schools on a nonsegregated basis.[206] The plaintiffs contended that

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[199] Juliana v. United States, 339 F. Supp. 3d 1062, 1085 (D. Or. 2018) (quoting Marbury v. Madison, 5 U.S. 137, 177 (1803)).

[200] *Id.* at 1085–86.

[201] Juliana v. United States, 947 F.3d 1159, 1176 (9th Cir. 2020) (Staton, J., dissenting).

[202] *Id.*

[203] *Id.* at 1188.

[204] *Id.* at 1189.

[205] *Id.* at 1188 (also noting California prison reform in Brown v. Plata, 563 U.S. 493, 511 (2011)).

[206] Brown v. Bd. of Educ., 347 U.S. 483, 487–88 (1954).

segregation deprived them of their Fourteenth Amendment right of equal protection of the laws because "segregated public schools are not 'equal' and cannot be made 'equal.'"[207]

Brown's remedy required federal-, state-, and local-level governments to revise, rewrite, or eliminate policies to effectuate public school integration.[208] The *Brown* Court stated that "[s]chool authorities have the primary responsibility for elucidating, assessing, and solving these problems; courts will have to consider whether the action of school authorities constitutes good faith implementation of the governing constitutional principles."[209] *Brown* required each local school district to end its policy of segregation, which caused *thousands* of schools to overhaul their policies.[210] Courts faced particularly hard challenges evaluating these policies because they needed to consider local particularities when crafting decrees to transition from a discriminatory system.[211] Any school that did not make a good faith effort faced the possibility of court proceedings to implement desegregation.[212] Even though the courts issued mandates from a centralized position of power, progress happened slowly because of the decentralized nature of school boards and strong resistance from Southern officials and legislatures.[213]

The *Brown* Court infamously ordered the school districts "to admit to public schools on a racially nondiscriminatory basis with all deliberate speed the parties to these cases."[214] Some commentators posit that the Court "ordered the [N]ation to make haste slowly," and effectively delayed the enjoyment of the constitutional right it had just declared.[215] *Brown* faced immense obstacles in its implementation from the executive, as well as from the Southern states, where "all deliberate speed meant any conceivable delay."[216] But, while the opposition may

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207 *Id.* at 488.

208 *Brown II*, 349 U.S. at 298.

209 *Id.* at 299.

210 *Id.* ("School authorities have the primary responsibility for elucidating, assessing, and solving these problems; courts will have to consider whether the action of school authorities constitutes good faith implementation of the governing constitutional principles.").

211 *Id.*

212 *Id.*

213 COTTROL, *supra* note 35, at 189–90 (noting that some Southern legislatures even enacted statutes designed to thwart desegregation).

214 *Brown II*, 349 U.S. at 301.

215 Julian Bond, *With All Deliberate Speed:* Brown v. Board of Education, 90 IND. L.J. 1671, 1676 (2015).

216 *Id.*

have delayed this plan, today nobody doubts that the Court had the authority to issue the remedy.

The *Juliana* plaintiffs claimed that the government violated their Fifth Amendment due process rights to a "climate system capable of sustaining human life" by subsidizing fossil fuels.[217] The plaintiffs' proposed remedy in their amended complaint included nine prayers for relief that involved both declaratory and injunctive demands.[218] Specifically, the plaintiffs petitioned the court to order the defendants to "prepare and implement an enforceable national remedial plan to phase out fossil fuel emissions and draw down excess atmospheric CO_2 so as to stabilize the climate system and protect the vital resources on which Plaintiffs now and in the future will depend."[219] Further, the plaintiffs requested that the court "monitor and enforce Defendants' compliance with the national remedial plan."[220]

This prayer for relief only implicates emissions controlled at the national level, although many CO_2 emissions come from sources that cannot be controlled nationally.[221] Approximately 80 percent of the energy in the United States comes from fossil fuels.[222] In 2019 the largest source of CO_2 emissions in the United States came from transportation—mainly passenger cars and light-duty trucks—which account for over half of transportation emissions.[223] The EPA suggests three different ways to reduce greenhouse gas emissions: (1) "fuel switching," which "improv[es] fuel efficiency with advanced design, materials, and technologies," (2) "improving operating practices," and (3) "reducing travel demand."[224] The EPA and the National Highway Traffic Safety Administration ("NHTSA") develop emissions standards for cars and light-duty trucks, putting these emissions directly within the purview of federal authority.[225] Consequently, courts may hold the

217 Juliana v. United States, 947 F.3d 1159, 1165 (9th Cir. 2020).

218 First Amended Complaint for Declaratory and Injunctive Relief at 94–95, Juliana v. United States, 947 F.3d 1159 (9th Cir. 2020) (No. 6:15-cv-01517-TC).

219 *Id.* at 94.

220 *Id.*

221 *See Sources of Greenhouse Gas Emissions*, EPA, [hereinafter *Sources of GHG*] https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions (last visited Jan. 14, 2021).

222 Juliana v. United States, 339 F. Supp. 3d 1062, 1093 (D. Or. 2018).

223 *Sources of GHG*, *supra* note 221 (transportation tab).

224 *Id.* Fuel switching includes replacing current fuel with any fuel that emits less CO_2 than is currently being used—while this may often include alternative, renewable sources of energy, the EPA also mentions "fossil fuels that are less CO_2-intensive than the fuels that they replace." *Id.*

225 *Regulations for Greenhouse Gas Emissions from Passenger Cars and Trucks*, EPA https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-emissions-passenger-cars-and (last visited Oct. 9, 2021).

federal government directly accountable for lowering CO_2 emissions through more stringent fuel standards.[226] While these standards would not include all CO_2 emissions from transportation, it would constitute a sizable step in curbing emissions.

The second highest source of CO_2 emissions comes from electricity generation.[227] Although the overall percentage of coal used to generate electricity is falling as renewables continue to rise,[228] coal remains a major source of generation.[229] Coal combustion introduces several harmful substances into the atmosphere, including sulfur dioxide, nitrogen oxides, particulates, carbon dioxide, mercury, and other heavy metals.[230] Because electricity generation is traditionally an area of state authority, opportunities to curb emissions are less likely to exist exclusively at the federal level.[231] This dichotomy means that any potential remedies regarding electricity generation will depend on decentralized state agencies to implement changes, although the bright line between federal and state jurisdiction has become more blurry with recent technological innovations[232] and with market developments.[233]

The third highest source of CO_2 emissions comes from the industry sector, which produces everyday goods and raw materials for consumers.[234] This sector consists of direct and indirect emissions,

226 *See Regulations for Greenhouse Gas (GHG) Emissions*, EPA, https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-greenhouse-gas-ghg-emissions (last visited Oct. 9, 2021) (including federal regulations for light-duty passenger cars and trucks, commercial trucks and buses, aircraft, and federal fleets).

227 *Sources of GHG*, *supra* note 221 (electricity tab).

228 *Electricity Mix in the United States, Q1 2020*, INT'L ENERGY AGENCY, https://www.iea.org/data-and-statistics/charts/electricity-mix-in-the-united-states-q1-2020 (last visited Oct. 9, 2021).

229 *What is U.S. Electricity Generation by Energy Source?*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/tools/faqs/faq.php?id=427&t=3 (last visited Oct. 9, 2021); *see also Sources of GHG*, *supra* note 221 (electricity tab) ("[N]on-fossil sources, such as nuclear, hydroelectric, wind and solar, are non-emitting.").

230 *Coal Explained*, U.S. ENERGY INFO. ADMIN., https://www.eia.gov/energyexplained/coal/coal-and-the-environment.php (last visited Oct. 9, 2021).

231 JEFFERY S. DENNIS, SUEDEEN G. KELLY, ROBERT R. NORDHAUS & DOUGLAS W. SMITH, FEDERAL/STATE JURISDICTIONAL SPLIT: IMPLICATIONS FOR EMERGING ELECTRICITY TECHNOLOGIES, at v (2016) (explaining that the Federal Powers Act authorizes the federal government to regulate "wholesale sales and transmission in interstate commerce," while the states regulate "generation, distribution, and retail sales").

232 *Id.* at v–vi.

233 *See FERC Proposes Policy Statement on State-Determined Carbon Pricing in Wholesale Markets*, FED. ENERGY REG. COMM'N, (Oct. 15, 2020), https://www.ferc.gov/news-events/news/ferc-proposes-policy-statement-state-determined-carbon-pricing-wholesale-markets (clarifying that FERC "has jurisdiction over organized wholesale electric market rules that incorporate a state-determined carbon price in those markets").

234 *Sources of GHG*, *supra* note 221 (industry tab).

depending on whether the emissions come from the facility or offsite.[235] Opportunities to reduce emissions in this industry include upgrading to more fuel-efficient technology, switching fuel sources, recycling, and training and awareness.[236] Such control may exist in the current Clean Air Act, or these solutions could come from new legislation that gives the federal government power.[237] Absent any such remedies, however, these solutions will likely need to come from the state level.

Considering the three largest sources of CO_2 emissions—transportation, electricity generation, and industry—the nature of *Juliana*'s remedy largely involves the federal government and federal agencies with centralized power. The original *Juliana* lawsuit sought only a 6 percent reduction in emissions per year,[238] which would allow initial orders from the issuing court to focus on federal solutions. Federal relief seeks action at a higher level of government than in *Brown*, where "revision of *local* laws and regulations" was necessary.[239] This difference decreases the sheer number of changes required to redress the *Juliana* plaintiffs—every school district in the country does not require an order to act. Such a remedy, while sweeping in its effects, does not impinge as high of a burden on the judiciary as the accepted order made by the *Brown* Court. While federal regulations and policies will not solve climate change in its entirety, states can issue additional remedies, still providing a more centralized base than the local school districts in *Brown*.

The *Julianna* court should have treated the scientific evidence presented to it just as the *Brown* court did and initiated court action. The *Brown* court accepted that science needed to inform the court and help fashion its remedy, even though that scientific evidence originated from the realm of social science, which typically has been considered less objective.[240] As demonstrated in the discussion above, courts—including the Court in *Brown*—have used multiple studies showing the

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235 *Id.*

236 *Id.*

237 *See Clean Air Act Permitting for Greenhouse Gases*, EPA, https://www.epa.gov/nsr/clean-air-act-permitting-greenhouse-gases (listing actions that the EPA has taken to "explain the next steps in GHG permitting").

238 Oliver Milman, *Ex-Nasa Scientist: 30 Years on, World Is Failing 'Miserably' to Address Climate Change*, GUARDIAN (June 19, 2018, 1:00 AM), https://www.theguardian.com/environment/2018/jun/19/james-hansen-nasa-scientist-climate-change-warning.

239 *Brown II*, 349 U.S. at 301 (emphasis added).

240 *See* David Faigman, *Normative Constitutional Fact-Finding: Exploring the Empirical Component of Constitutional Interpretation*, 139 U. PA. L. REV. 541, 550 (1991); *see also id.* at 604 ("In principle, the social sciences can be as objective and scientific as their more heralded cousins, the natural sciences.").

same or similar impacts to mimic the reproducibility that exists within the natural sciences. That the *Juliana* court did not use science to help devise a remedy becomes even more surprising when compared to *Brown* because the veracity of the natural scientific evidence presented in *Juliana* was easily authenticated and even admitted by the government.[241] This difference demonstrates the reluctance of courts to rely on scientific evidence and points to the necessary remedy: for the Supreme Court to grant certiorari in the *Juliana* case and, using *Brown* as a framework, ground their final decision in climate science. The remedy that the *Juliana* plaintiffs requested exists largely at the federal level, which makes a court-ordered remedy easier to implement than the piecemeal orders of *Brown* to school districts. Although not present in all areas that emit CO_2, these simplified logistics will make an order easier to issue and oversee in the Supreme Court.

V. THE SUPREME COURT MUST GRANT CERTIORARI TO *JULIANA*

The scientific evidence offered in *Juliana* demands immediate action. Plaintiffs' expert warns that climate change is irreversible since "[a]tmospheric warming will continue for some [thirty] years after we stop putting more greenhouse gasses into the atmosphere. But that warmed atmosphere will continue warming the ocean for centuries, and the accumulating heat in the oceans *will persist for millennia*."[242] The government's scientists predict that current "sea levels will rise two feet by 2050, nearly four feet by 2070, over eight feet by 2100, [eighteen] feet by 2150, and over [thirty-one] feet by 2200."[243] Two million American homes will become uninhabitable with a three-foot rise. Miami, New Orleans, and other coastal cities will disappear with a twenty-foot rise.[244] Without action, the United States will change as we know it. The government admitted in its Answer to the *Juliana* complaint that it knew about the harmful effects of CO_2 emissions.[245] Yet, it continued not only to allow such emissions but to *subsidize* the industries that create these emissions at a rapid pace.[246]

The undisputed scientific evidence that the plaintiffs present mirror the studies brought in *Brown* that allowed the Court to overrule *Plessy*. The science offered in *Brown*'s footnote eleven proved that the

241 *See supra* Section III.B.

242 *Juliana*, 947 F.3d at 1176 (Staton, J., dissenting); *id.* at 1171 (majority opinion); *see supra* note 96 and accompanying text.

243 *Juliana*, 947 F.3d at 1176 (Staton, J., dissenting).

244 *Id.* (Staton, J., dissenting).

245 *See supra* Section III.B.

246 *See supra* text accompanying notes 173–176.

government's policy of "separate but equal" had detrimental psychological effects on black school children. But public school is not the only place where segregation took place. There was no Civil Rights Act. Integrating public schools would not force the public to shed its conscious and unconscious biases, which continue to plague society today.

The Supreme Court, however, was presented with a limited question in *Brown*: Does segregation deprive black children of equal educational opportunities?[247] The Court answered yes, holding that "[s]eparate educational facilities are inherently unequal."[248] Integrated schools would not stop the negative effects of segregation present in other areas of the plaintiffs' lives. But the Supreme Court did not use these other instances of segregation as an excuse to maintain segregated schools. Rather, the Court rightfully exercised its judicial power to fix this injustice.

The Ninth Circuit faced a similar problem in *Juliana*. The hard science presented by the plaintiffs indisputably proves that government subsidies on fossil fuels have direct negative effects on the health and well-being of all U.S. citizens. Fossil fuels will continue to burn and disperse their harmful effects on Americans regardless of judicial action. The court, however, was presented with a limited request: an order for the government to develop a plan to "phase out fossil fuel emissions and draw down excess atmospheric CO_2."[249] In conflict with *Brown*, the Ninth Circuit has told Americans that the judiciary cannot take steps towards creating a safer environment because those steps would not be perfect.[250] Preventing fossil fuel subsidies will not altogether stop extreme weather events, just like integrating schools would not altogether stop racial discrimination in 1954. But even though climate change has altered the environment in many irreversible ways, this is no reason to continue to allow the government to promote the *further* degradation of the Earth through fossil fuel subsidies.

The case presented to the Ninth Circuit in *Juliana* gave the Court all the scientific evidence necessary to rule in favor of the plaintiffs. The Ninth Circuit has rejected the plaintiffs petition for a rehearing en banc to review the court's sharply divided opinion.[251]

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247 *Brown*, 347 U.S. at 493.

248 *Id.* at 495.

249 Juliana v. United States, 947 F.3d 1159, 1164–65 (9th Cir. 2020).

250 *See supra* note 86 and accompanying text.

251 Juliana v. United States, No. 18-36082, 2021 U.S. App. LEXIS 3688, at *5 (9th Cir. Feb. 10, 2021).

The Supreme Court should grant certiorari because this case has national significance.[252] According to plaintiffs' experts, approximately 80 percent of the energy in the United States comes from fossil fuels because of "political preference and historic government support" rather than necessity.[253] As the mix of renewable sources of energy generation would necessarily accelerate as the result of a favorable ruling, *Juliana* would become of tremendous national significance. If the government received an order to lower the use of fossil fuels in the United States, the country's energy system would require reconfiguration.

The Supreme Court may alternatively grant certiorari when a case may have precedential value.[254] *Juliana* would undoubtedly have precedential value, as it would allow the Court to settle the redressability question within *substantive* climate cases in the federal government.[255] Environmental cases often encounter problems regarding standing, and the Court does not often have the opportunity to address this question of substantive importance.

Finally, the Supreme Court should grant certiorari to *Juliana* because it will correct the injustice of forcing U.S. citizens to suffer the negative effects of climate change. While the Court does "not grant cert to correct individual injustices,"[256] *Juliana* does not present an individual injustice, but rather an injustice to *all* U.S. citizens. In that way, *Juliana* closely mimics the injustice fought in *Brown*, which likewise affected all citizens.

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252 *Supreme Court Procedures*, U.S. COURTS, https://www.uscourts.gov/about-federal-courts/educational-resources/about-educational-outreach/activity-resources/supreme-1 (last visited Oct. 9, 2021).

253 Juliana v. United States, 339 F. Supp. 3d 1062, 1093 (noting evidence from Dr. Joseph Stiglitz and Dr. Mark Jacobson).

254 *Supreme Court Procedures*, *supra* note 252.

255 Juliana v. United States, 947 F.3d 1159, 1171 (9th Cir. 2020) (distinguishing *Juliana* from *Massachusetts v. EPA* because the *Juliana* plaintiffs assert a substantive right, while *Massachusetts v. EPA* involved merely a procedural right); *see also* Massachusetts v. EPA, 549 U.S. 497, 505 (2007) (deciding the two issues of "whether EPA has the statutory authority to regulate greenhouse gas emissions from new motor vehicles; and if so, whether its stated reasons for refusing to do so are consistent with the statute").

256 Stewart A. Baker, *A Practical Guide to Certiorari*, 33 CATH. U. L. REV. 611, 616 (1984).

VI. CONCLUSION

"If we abdicate responsibility to address the difficult questions of our time, those in need of refuge from the torrents of political, economic, and religious forces will find no haven in the law and the law will no longer be supreme."[257] The *Juliana* court ruled incorrectly because it had the science available to support a groundbreaking decision, much like *Brown*, but refused to grant the plaintiffs this "haven in the law."[258] The Court should grant certiorari to the *Juliana* impact litigation case and proscribe the proper weight to the scientific evidence presented.

Chief Justice Warren's opinion in *Brown* undoubtedly changed society in the United States for the better, despite the slow, arduous process that the law demanded. While overturning *Juliana* may require another long, arduous process, it will undoubtedly leave the United States in a better position, just as *Brown* did.

257 JACK BASS, TAMING THE STORM: THE LIFE AND TIMES OF JUDGE FRANK M. JOHNSON, JR., AND THE SOUTH'S FIGHT OVER CIVIL RIGHTS 278 (1993).

258 *Id.*