ARTICLES

CHALLENGING NPDES PERMITS GRANTED WITHOUT
PUBLIC PARTICIPATION

Terence J. Centner

[pages 1–40]

Abstract: Efforts to enhance water quality include citizen oversight of the development of effluent limitations set forth in National Pollutant Discharge Elimination System permits. Because concentrated animal feeding operations (CAFOs) generate considerable manure that may be associated with water pollution, environmental groups have challenged EPA’s regulations, including the absence of a right to participate in the development of effluent limitations. Without public input, there is a restricted dialogue on alternatives and fewer opportunities for enforcement actions. Revised regulations covering discharges from CAFOs contain new requirements for permit applicants. Before the authorization of any discharge by a permitting authority, the public must have an opportunity to evaluate the effluent standards. A review of several cases suggests that the participation requirements apply not only to new discharges, but also modifications to discharges in existing permits. The regulations and cases suggest that citizens can be even more active in championing environmental quality.

THE BUTTERFLY EFFECT: CONSERVATION EASEMENTS, CLIMATE CHANGE, AND INVASIVE SPECIES

James L. Olmsted

[pages 41–76]

Abstract: This Article explains that one of the consequences of climate change will be migrations of species from their native habitats to newer habitats, typically to the north, with climates similar to those in which such species evolved. These in-migrating species will in many cases be invasive,
forcing the native species to out-migrate or be driven to extinction, thereby causing biodiversity loss. As many of these disrupted ecosystems may be protected by perpetual conservation easements, the Article discusses the negative legal consequences of incursions by non-native species on these existing conservation easements. Accordingly, the Article suggests a number of changes that can be made to future conservation easements to help insure their protection of land in perpetuity and to better protect species and their habitats from the effects of climate-change-caused migrations.

ESSAY

THE VERY DEFINITION OF FOLLY: SAVING THE EARTH FROM ENVIRONMENTALISTS

Matthew F. Pawa

Abstract: Global heating is the greatest challenge of our time. While we know what is causing the global heating problem, and we know how to fix it, certain environmentalists pose a severe threat to the great hope of renewable energy that must be part of the solution to global heating. All across the United States those claiming to speak for the environment are filing legal actions against developers of solar and wind projects. They are using environmental laws, zoning laws, and anything else they can latch onto to fight renewable energy projects. This is the very definition of folly. We environmental lawyers have perfected the art of slowing down, burdening, and questioning to death developers. It was a great strategy for fighting the bad guys. But it is now presenting one of the biggest threats to the good guys, and to our environment. We now need to learn how to say “yes.”

NOTES

DONOVAN v. PHILIP MORRIS USA, INC.: THE BEST APPROACH TO SATISFYING THE INJURY REQUIREMENT IN MEDICAL MONITORING CLAIMS

Philip Desai

Abstract: Medical monitoring claims seek money damages for the costs of medical testing required after toxic exposure. However, victims of toxic
exposure often face challenges proving medical monitoring claims. Many courts require plaintiffs prove they have a present physical injury, and victims usually do not have any disease or illness attributable to the toxic exposure when they bring medical monitoring claims. This Note argues that while a present physical injury should be required, a plaintiff that demonstrates subcellular changes indicating toxic exposure and an increased risk of developing a disease sufficiently satisfies the present physical injury requirement. The best standard for addressing a medical monitoring claim was outlined in Donovan v. Philip Morris USA, Inc., a recent decision by the Supreme Judicial Court of Massachusetts.

**The Power of One: Citizen Suits in the Fight Against Global Warming**

*Katherine A. Guarino*

[pages 125–158]

**Abstract:** Plaintiffs seeking compensation from the effects of global warming have encountered challenging legal barriers. Until 2009, courts consistently dismissed global warming suits as political questions or for lack of standing. In Comer v. Murphy Oil USA, property owners along the Mississippi Gulf coast sued oil and energy companies in nuisance for emitting greenhouse gases that contributed to global warming and added to the intensity of Hurricane Katrina, which damaged their property. In 2009, the Fifth Circuit surprisingly held that a class of private citizens could satisfy both standing and the political question doctrine in a global warming suit. However, after winding through a complex procedural pathway, that decision was ultimately vacated the following year following the denial of a writ of mandamus by the Supreme Court. Comer’s companion case in the Second Circuit, American Electric Power, Co., has been granted certiorari by the Supreme Court. That case should resolve the primary issues from Comer, namely standing and justiciability. It also marks the first opportunity for the Supreme Court to rule on the legitimacy of public nuisance claims against greenhouse-gas-emitting companies for injury from global warming. It is likely that the plaintiffs will be unable to prove causation, even if they succeed on the contentious issues of standing and justiciability.
Outsourcing the Filth: Privatizing Brownfield Remediation in New Jersey

Alexander Maro

[pages 159–192]

Abstract: Environmental cleanup for contaminated properties is a complicated process, with liability existing at both state and federal levels. For many years, the federal government has largely deferred responsibility for the cleanup of contaminated properties to the states. New Jersey has recently privatized several aspects of its environmental cleanup process. Prior to privatizing the state cleanup process, New Jersey had refined the typical state model of a Voluntary Cleanup Program by creating the Brownfield Developmental Area initiative. The Brownfield Developmental Area initiative was extremely effective, yet it was expensive to administer. As a result, New Jersey implemented the Site Remediation Reform Act, which totally eliminated the state’s Voluntary Cleanup Program, and privatized the cleanup process. This note argues against some of the policies associated with the privatization of environmental cleanup, and suggests several courses of action that can be implemented to maximize privatized site cleanup.

RCRA’s New Causation Question: Linking Ubiquitous Wastes to Specific Defendants

Michael Somers

[pages 193–217]

Abstract: The Resource Conservation and Recovery Act (RCRA) imposes liability on defendants whose handling of solid waste may present an imminent and substantial danger to the environment. For most of RCRA’s history, there was no need to prove a link between waste that was harming the environment and the waste handled by the defendant, because the highly specific materials litigated under RCRA only could have come from the defendant. However, now that plaintiffs have sued defendants over the handling of naturally occurring wastes, courts must decide what level of proof is required to demonstrate the link between the defendant’s waste and the waste causing the harm. This Note argues that courts should use the same low standard of proof of causation that applies throughout the rest of the statute.
Efforts to enhance water quality include citizen oversight of the development of effluent limitations set forth in National Pollutant Discharge Elimination System permits. Because concentrated animal feeding operations (CAFOs) generate considerable manure that may be associated with water pollution, environmental groups have challenged EPA’s regulations, including the absence of a right to participate in the development of effluent limitations. Without public input, there is a restricted dialogue on alternatives and fewer opportunities for enforcement actions. Revised regulations covering discharges from CAFOs contain new requirements for permit applicants. Before the authorization of any discharge by a permitting authority, the public must have an opportunity to evaluate the effluent standards. A review of several cases suggests that the participation requirements apply not only to new discharges, but also modifications to discharges in existing permits. The regulations and cases suggest that citizens can be even more active in championing environmental quality.

INTRODUCTION

To foster a more robust democracy, Congress granted citizens opportunities to participate in establishing environmental regulations and ensuring their enforcement. There are significant public participation requirements at three stages. First, when an agency adopts new regulations, the public has a right to be involved.\(^1\) Individuals, business entities, and groups can present data and push for the adoption of regulations to address perceived problems.\(^2\) The second major stage of public participation is when a new discharger requests a permit to discharge wastewater into a water body. Before the authority grants the permit, the public must be given an opportunity to evaluate the proposed standards. A review of several cases suggests that the participation requirements apply not only to new discharges, but also modifications to discharges in existing permits. The regulations and cases suggest that citizens can be even more active in championing environmental quality.
involvement occurs when agencies issue permits; requirements command that the public has an opportunity to be involved in reviewing permit applications. Third, many federal environmental statutes allow citizens to bring suits to enforce laws or to compel action by federal agencies. Citizen suits allow successful plaintiffs to be awarded attorney fees. Citizen suit provisions have been employed to address environmental violations and enhance governmental enforcement.

Dissatisfaction with the quality of our environment has led citizen groups to become active participants in all three of these opportunities for public involvement, and citizen suits have been important in achieving the goals of environmental legislation. However, citizen suits are limited by the statutory grant, requirements of injury, and redressability. Moreover, citizen suits generally are not possible if a government is already diligently prosecuting an action. Courts have interpreted fed-

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3 See, e.g., 33 U.S.C. § 1251(e) (2006) (mandating public participation in developing and enforcing effluent limitations, which are set forth by permits).
eral law to further limit citizen suits via standing or deferring to decisions by the regulatory authority.\(^{10}\)

This Article addresses opportunities for citizen involvement in the issuance of National Pollutant Discharge Elimination System (NPDES) permits, and the use of citizen suits to compel regulatory authorities to provide requisite opportunity for input. Congressional directives in section 101 of the Clean Water Act (CWA),\(^ {11}\) and their application to the permitting of discharges from concentrated animal feeding operations (CAFOs), provide opportunities for enhanced citizen input. Failure to allow the public to participate in the CWA’s permitting process has led to citizen suit challenges. Citizen participation in the regulation of CAFOs under the CWA provides informative examples of the benefits of public involvement at multiple stages of environmental regulation.\(^ {12}\)

CAFOs are listed as point sources under the CWA and therefore need to secure NPDES permits before they can discharge pollutants into waters of the United States.\(^ {13}\) Although CAFOs are defined by CWA regulations, disdain for CAFO operations is not solely premised on water pollution. The public is also concerned about the humanness of raising animals at concentrated facilities,\(^ {14}\) the demise of family farms,\(^ {15}\) the overuse of antibiotics,\(^ {16}\) and air pollution from large con-

\(^{10}\) See, e.g., Lujan, 504 U.S. at 578 (finding that citizens lack standing to bring suit); Ark. Wildlife Fed’n v. ICI Americas, Inc., 29 F.3d 376, 381 (8th Cir. 1994) (finding that comparable state public participation provisions were sufficient even if they did not allow the same participation as available under federal law); N. & S. Rivers Watershed Ass’n v. Town of Scituate, 949 F.2d 552, 557 (1st Cir. 1991) (deferring to a state agency’s actions in enforcing discharge limitations under the Clean Water Act).


\(^{13}\) See 40 C.F.R. § 412.1 (2010); see also 33 U.S.C. §§ 1311(a), 1342, 1362(14) (defining point source and precluding discharges of pollutants except as authorized).


\(^{15}\) See, e.g., Kate Celender, Note, The Impact of Feedlot Waste on Water Pollution Under the National Pollutant Discharge Elimination System (NPDES), 33 WM. & MARY ENVTL. L. & POL’Y REV. 947, 960 (2009) (claiming that CAFOs can lead to the demise of family farms); Johnson, supra note 14, at 1408 (claiming that “CAFOs threaten the existence of family farms”); Ryan Alan Mohr, Note, Waterkeeper Alliance v. EPA: A Demonstration in Regulating the Regulators, 10 GREAT PLAINS NAT. RESOURCES J. 17, 17–18 (2006) (noting that CAFOs keep getting larger and displacing family farms).
centrations of animals. The animosity against CAFOs may stem from one or more of these issues, and the negative externalities associated with the production of food animals at CAFOs provides arguments for regulating their activities. Efforts to assist family farms have lead some environmentalists to argue that if CAFOs had to internalize pollution costs accompanying the production of animals, they would not be any more economically efficient than traditional farms.

CAFOs have been regulated by the Environmental Protection Agency (EPA) under a CAFO Rule since the 1970s, and the federal regulations governing their discharges have been successively challenged since the early 1990s. The EPA responded to a judicial order by enacting a revised CAFO Rule in 2003. Environmental and agricultural interest groups immediately challenged selected provisions of the 2003 CAFO Rule in Waterkeeper Alliance, Inc. v. United States EPA.

The Second Circuit Court of Appeals issued the Waterkeeper decision, which addressed petitioners concerns and required the EPA to develop yet another revised rule. One of the major issues addressed

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16 See generally Terence J. Centner, Regulating the Use of Non-Therapeutic Antibiotics in Food Animals, 21 GEO. INT’L ENVTL. L. REV. 1 (2008) (discussing the adoption of a precautionary principle to safeguard human health by limiting the use of non-therapeutic antibiotics in food animals).


20 See, e.g., Concerned Area Residents for the Env’t v. Southview Farm, 34 F.3d 114, 115–16 (2d Cir. 1994).

21 Preamble to the 2003 CAFO Rule, supra note 19, at 7179 (acknowledging the 1974 and 1976 regulations).

22 399 F.3d 486, 497 (2d Cir. 2005).

23 See id. at 524.
by the Waterkeeper court was the ability of the public to participate in the development of applicants’ nutrient management plans set forth in NPDES permits.\textsuperscript{24} The court found that the 2003 CAFO Rule violated section 101 of the CWA’s public participation requirements, because it allowed permitting authorities to approve NPDES permits without revealing the particulars of nutrient management plans, and vacated that portion of the 2003 CAFO Rule.\textsuperscript{25}

Similarly, \textit{Sierra Club Mackinac Chapter v. Department of Environmental Quality}, involved a challenge to the public participation opportunities provided in a state-administered NPDES permitting program.\textsuperscript{26} Michigan’s approval process for discharges under general permits failed to allow the public to participate in developing and revising CAFOs’ nutrient management plans.\textsuperscript{27} The court noted that allowing concerned citizens access to nutrient management plans through a Freedom of Information Act request did not provide the public “meaningful review during its development.”\textsuperscript{28} Michigan’s permit program was found to be deficient because it did not provide public participation as required by federal statutory requirements.\textsuperscript{29}

In 2008, the EPA adopted a revised CAFO Rule that responded to the shortcomings of the 2003 Rule.\textsuperscript{30} However, agricultural interest groups claim provisions of this rule are contrary to the congressional dictates of the CWA, and have challenged the 2008 CAFO Rule in the Fifth Circuit.\textsuperscript{31} Litigation over the 2008 CAFO Rule highlights the difficulty in devising regulations that comply with federal law without going too far.\textsuperscript{32}

\textsuperscript{24} \textit{Id.} at 503–04, 524 (citing 33 U.S.C. § 1251(e) (2006)).
\textsuperscript{25} \textit{Id.}
\textsuperscript{27} Sierra Club Mackinac Chapter, 747 N.W.2d at 334–35.
\textsuperscript{28} \textit{Id.} at 335.
\textsuperscript{29} \textit{Id.}
\textsuperscript{32} \textit{See, e.g.,} Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 497–524 (2d Cir. 2005); Pork Producers Brief, \textit{supra} note 31, at 37–86.
This Article addresses public participation and citizen suits to portend that environmentalists have a potent weapon to garner further compliance with NPDES permitting provisions of federal environmental statutes. Part One briefly addresses concerns about water pollution from CAFOs. Evidence suggests large animal producers may over-apply manure to fields, which leads to nutrient pollution of waters of the United States. The EPA has struggled to meaningfully address the pollutants entering surface waters from the land application of manure. Part Two summarizes participation under the CWA and the intent of Congress in delineating citizen input requirements for the NPDES permitting process. The Act is explicit in commanding opportunities for public input in processes regulating discharges of pollutants. Part Three turns to the judicial interpretation of the Act and its parameters for public participation. Courts have held that the public has a right to participate in the development of effluent limitations, enforcement provisions, and notices of intent under general permits.

Part Four analyzes the Act’s citizen suit provisions and what they mean with respect to public participation. Because courts have found that a statutory “diligent-prosecution” bar in the Act limits citizen participation, the bar is analyzed to determine congressional intent. This analysis serves as guidance for examining the meaning of public participation in the NPDES permitting process in Part Five. Judicial precedents suggest that the failure of a permitting authority to provide an opportunity for participation in the modification of a permit may mean that the permit is invalid. Given judicial pronouncements, permittees may find it advantageous to encourage permitting authorities to comply with public participation requirements, while citizen groups may employ citizen suits to become more active in participating in permitting activities.

I. CAFO Water Pollution

During the last fifty years, pastoral landscapes of animals grazing in pastures at family farms have vanished. Concentrations of animals of a single species at production locations have become prevalent, creating
manure disposal problems. When many large farms are located in a single region, manure volume may become excessive. Watersheds are being polluted by nitrogen and phosphorus from the large amounts of animal manure that are applied to fields. Given negative externalities associated with polluted waters, parties are filing lawsuits against animal producers and firms associated with animal production.

Under the CWA, large animal farms are labeled as CAFOs. The EPA has enacted a CAFO Rule that defines CAFOs based on the number of animals of a given species at a location. Three subcategories of CAFOs are distinguished in the rule: Large, Medium, and Small. CAFOs that discharge pollutants into waters of the United States are required to secure NPDES permits. Most CAFOs with NPDES permits are Medium and Large CAFOs consisting of the following numbers of animals:

200 or more dairy cows;

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39 Marc Ribaudo et al., U.S. Dep’t of Agric., Agric. Econ. Rep. No. 824, Manure Management for Water Quality: Costs to Animal Feeding Operations of Applying Manure Nutrients to Land 1 (2003). One study showed that “[o]nly 18 percent of large hog farms and 23 percent of large dairies are currently applying manure on enough land to meet a nitrogen standard.” Id. at 83. For purposes of this Article, manure will refer to manure, litter, or process wastewater, since the CAFO Rule applies to these forms of waste accompanying animal production. 40 C.F.R. § 122.23(a) (2010).


42 See Oklahoma v. Tyson Foods, Inc., 565 F.3d 769, 773 (10th Cir. 2009) (requesting the injunction of application of poultry litter on fields in a watershed); Cmty. Ass’n for Restoration of the Env’t v. Henry Bosma Dairy, 305 F.3d 943, 953–54 (9th Cir. 2002) (challenging the overapplication and misapplication of manure to a field that led to discharges to navigable waters); Missouri ex rel. Nixon v. Premium Standard Farms, Inc., 100 S.W.3d 157, 158 (Mo. Ct. App. 2003) ( contesting the grazing of cattle under a state corporate farming statute); Cmty. Ass’n for Restoration of the Env’t v. Wash. Dep’t of Ecology, 205 P.3d 950, 953–54 (Wash. Ct. App. 2009) (challenging a general permit application that would allow CAFOs to spread manure and litter on fields). See generally Tyson Complaint, supra note 41 (lawsuit against poultry integrators).

43 See 40 C.F.R. § 122.23(b) (2010).

44 Id.

45 Id. § 122.23(b) (4), (6), (9).

46 See id. § 122.23(a). Medium CAFOs need a NPDES permit if they discharge pollutants directly into waters of the United States, or pollutants originating outside the facility are discharged into waters of the United States. Id. § 122.23(b) (6) (ii).
300 or more cattle consisting of veal calves, heifers, bulls, steers, cow-calf pairs; 
750 or more swine weighing fifty-five pounds or more; 
3000 or more swine weighing less than fifty-five pounds; or 
37,500 or more poultry with a non-liquid manure system.\textsuperscript{47}

Farms with fewer animals than listed in the CAFO Rule are treated as nonpoint source polluters, and dispose of their animal waste under voluntary best management practices.\textsuperscript{48} Under state nonpoint source pollution law, the regulation of agricultural pollution on these smaller farms has been unsuccessful.\textsuperscript{49} Distinctions in NPDES permitting requirements exist between Medium and Large CAFOs, but the federal public participation provisions are the same.\textsuperscript{50}

For two decades, environmental groups have sought to enhance the enforcement of the NPDES permitting programs over CAFOs.\textsuperscript{51} A consent decree by the EPA concerning inadequate regulations to control discharges led to a court order in 1992, under which the EPA agreed to revise its effluent limitation guidelines.\textsuperscript{52} The EPA adopted revised federal regulations governing discharges from CAFOs in 2003. Groups challenged whether the provisions complied with the public participation requirements of the CWA.\textsuperscript{53} In drafting revised regulations for CAFOs, the EPA is in the difficult situation of attempting to comply with the CWA and judicial directives, while responding to arguments by contentious environmental and agricultural interest

\textsuperscript{47} Id. § 122.23(b) (6)(i) (prescribing minimum animal numbers for Medium CAFOs).


\textsuperscript{49} See id.


\textsuperscript{51} See Cmty. Ass’n for Restoration of the Env’t v. Henry Bosma Dairy, 305 F.3d 943, 954 (9th Cir. 2002); Cmty. Ass’n for Restoration of the Env’t v. Sid Koopman Dairy, 54 F. Supp. 2d 976, 981 (E.D. Wash. 1999); CLAUDIA COPELAND, CONG. RESEARCH SERV., RL 31851, \textit{Animal Waste and Water Quality: EPA Regulation of Concentrated Animal Feeding Operations (CAFOs) 8–9 (2010).}


\textsuperscript{53} Preamble to the 2003 CAFO Rule, \textit{supra} note 19, at 7233–34.
groups. The problem involves the failure of many waters to meet the water quality goals set by the CWA. While environmental and agricultural interest groups argue about what is required by the CWA, past and current controls and practices have not removed sufficient pollutants to meet water quality objectives.

Although accurate information regarding the number, size, and location of CAFOs nationwide is not available, it is assumed that considerable amounts of phosphorus and nitrogen in impaired waters come from facilities producing animals. Specifically, due to concentrations of animals, and the expense of hauling manure to more distant fields, manure is over-applied to the fields surrounding CAFOs, creating a nonpoint source of excess nitrogen and phosphorous. A study by the United States Department of Agriculture (USDA) estimated that in 1997 more than one-half of the nation’s hog farms applied too much manure to fields based on the nitrogen needs of crops being grown. Estimates suggest that three-fourths of the country’s largest dairy farms apply manure above amounts of nitrogen needed for crop production. The study also surmised that sixty-four percent of phosphorus in hog manure exceeds amounts needed for crop production.

Under the 2008 CAFO Rule, separate regulatory provisions apply to areas where animals are being produced and areas used for the land application of manure. Production areas at Large CAFOs consisting of animal confinement areas, manure storage areas, raw materials stor-

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54 See Copeland, supra note 51, at 15–21.
55 See EPA, Office of Water, EPA 841-R-08-001, National Water Quality Inventory: 2004 Report to Congress 1 (2009). A recent EPA report found that forty-four percent of the nation’s rivers and streams were not clean enough to support their designated uses. Id.
56 See id. at 1–2.
58 Ribaudo et al., supra note 39, at iii.
59 See Krishna P. Paudel et al., Geographic Information Systems (GIS) Based Model of Dairy Manure Transportation and Application with Environmental Quality Consideration, 29 Waste Mgmt. 1634, 1640–41 (2009) (evaluating the economics of transporting dairy manure to suggest that it may be over-applied when it is uneconomical to haul the manure to distant fields).
60 Ribaudo et al., supra note 39, at 14.
61 Id. at 16, 25 (reporting for farms with more than 1000 animal units, which is equivalent to 700 dairy cows).
62 Id. at 25.
63 40 C.F.R. § 122.23(b)(3), (8) (2010).
age areas, and waste containment areas cannot have any discharges to surface waters, although exceptions exist for storm events.\textsuperscript{64} For land application areas under the control of a CAFO owner or operator, agricultural stormwater discharges are allowed.\textsuperscript{65} This suggests that most pollutants from permitted CAFOs come from manure being applied to fields.\textsuperscript{66} It also is not known how many pollutants come from non-regulated animal production operations, including production where grazing animals may defecate in surface waters.\textsuperscript{67}

Resistance to complying with the CWA’s regulatory controls to reduce water pollution is based on economics.\textsuperscript{68} It is costly for agricultural producers to adhere to best management practices and secure NPDES permits, prompting agricultural interest groups to argue for fewer controls and more exceptions.\textsuperscript{69} The USDA estimated in 2003 that the development of a comprehensive nutrient management plan would cost a farm more than $8100.\textsuperscript{70} A recent study suggested that nutrient management planning for nitrogen may cost a farm a loss of profits ranging from twelve to nineteen percent.\textsuperscript{71} It is also expensive for state permitting agencies to oversee permit applications and inspections, meaning that states may also support interpretations of the CWA

\textsuperscript{64} Id. \textsection 122.23(b)(8) (definition of production area). Large CAFOs are not able to have any discharge from production areas. Id. \textsection\textsection 412.12(a), 412.15(a), 412.25(a), 412.31(a), 412.46(a). Rainfall events causing discharges from Large CAFOs are not precluded by the CAFO Rule if the CAFO is designed to not have runoff except from a twenty-five year, twenty-four hour rainfall event. Id. \textsection\textsection 412.15(b), 412.25(b), 412.31(a)(1).

\textsuperscript{65} Id. \textsection 122.23(e).

\textsuperscript{66} See Ribaudo et al., supra note 39, at 1 (discussing how land application is the predominant method for disposing of manure).


\textsuperscript{68} See Preamble to the 2003 CAFO Rule, supra note 19, at 7242–50 (explaining how the EPA considered costs in the adoption of the 2003 CAFO Rule).

\textsuperscript{69} See Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 504–06 (2d Cir. 2005). In the Waterkeeper lawsuit, agricultural interest groups were successful in challenging a duty to apply requirement introduced in the 2003 CAFO Rule that would have mandated more operators to apply for NPDES permits. Id. at 504–05.


that minimize regulatory oversight. In addition, the lack of personnel in state permitting agencies may limit enforcement actions.

During the development of the 2003 CAFO Rule, the EPA estimated that only twenty percent of CAFOs required to have permits actually had been issued one by a permitting authority. With the revised provisions of the 2003 CAFO Rule, more CAFOs have applied for permits. Compliance with the rule, however, may not achieve desired water quality goals. Permitted CAFOs are able to have agricultural stormwater discharges, and non-CAFOs may also contribute significant amounts of pollutants to surface waters. Many larger production facilities do not have sufficient acreages for applying their animal waste so it is often over-applied on fields. CAFOs with NPDES permits would be violating the terms of their permits by over-applying manure in this way; animal operations without permits would simply be failing to comply with voluntary best management practices. In both cases, sanctions for over-application have been rare.

Given this lack of effective enforcement, and continued nutrient contamination from animal production, citizens and environmental groups have sought to help enforce the NPDES permit requirements. However, a lack of information has limited the ability of citizens to

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72 See Preamble to the 2003 CAFO Rule, supra note 19, at 7242. In proposing the 2003 CAFO Rule, the EPA estimated that the administrative costs to federal and state governments would be $9,000,000 per year. Id.
74 NPDES Permit Regulation and Effluent Limitations Guidelines and Standards for CAFOs, 66 Fed. Reg. 2960, 3080 (proposed Jan. 12, 2001) (noting that only 2500 out of an estimated 12,700 CAFOs with more than 1000 animal units obtained NPDES permits).
75 The EPA estimated that as of March 2008, about 9000 of an estimated 19,000 Medium and Large CAFOs had permits. EPA Targets Clean Water Act Violations at Livestock Feeding Operations, EPA Enforcement Alert, March 2009, at 1–2.
77 Ribaudo et al., supra note 39, at 14, 31.
79 See GAO REPORT, supra note 57, at 48. The EPA admitted that it “has neither the information it needs to assess the extent to which CAFOs may be contributing to water pollution, nor the information it needs to ensure compliance with the Clean Water Act.” Id.
monitor and enforce water quality limitations.\textsuperscript{81} Since NPDES permits set forth practices to reduce pollutant discharges, unless citizens have access to the information required in these permits, they cannot effectively help enforce limitations against polluters who are violating the CWA.\textsuperscript{82} The EPA and state permitting authorities have not been diligent in enacting regulations that mandate public participation, so environmental groups have had to resort to litigation to enforce public participation opportunities mandated by the congressional dictates of the CWA.\textsuperscript{83}

II. Public Participation Under the CWA

An analysis of the CWA’s requirements for public participation starts with the text of section 101. The Act is intended “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”\textsuperscript{84} To achieve this goal, the CWA precludes discharges of pollutants from point sources into navigable waters, unless the point source discharger has obtained a NPDES permit.\textsuperscript{85} Through the NPDES permit program, the Act reduces the amount of pollutants into the waters of the United States to improve water quality.\textsuperscript{86} Simultaneously, the NPDES program transforms the Act’s provisions into specific obligations for pollutant discharges.\textsuperscript{87} Owners and operators of point sources can only discharge the specific types and amounts of pollutants authorized by a permit.\textsuperscript{88}

Permits under the NPDES program are either issued by EPA directly, or by states that have been authorized by the EPA to implement

\textsuperscript{81} See Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 503–04 (2d Cir. 2005).
\textsuperscript{82} See id.
\textsuperscript{83} See id. (finding the EPA had deprived the public of an opportunity to participate guaranteed by the CWA); Sierra Club Mackinac Chapter v. Dep’t Envtl. Quality, 747 N.W.2d 321, 333 (Mich. Ct. App. 2008) (finding that Michigan’s regulations did not satisfy the CWA’s citizen participation requirements).
\textsuperscript{85} 33 U.S.C. §§ 1311, 1342.
\textsuperscript{86} See id. § 1251 (a)–(c).
\textsuperscript{88} 33 U.S.C. §§ 1311, 1342.
and administer the federal NPDES provisions. EPA issues permits directly in only a few unauthorized states and Indian Country. Most NPDES permits are issued by state permitting authorities, and in some instances, states have authority over certain categories of discharges and no authority for others.

With the NPDES permitting system serving as the mechanism to oversee point source pollution, Congress recognized the public’s need to have relevant information on discharge sources and control requirements. The Act’s congressional declaration of goals and policy states:

Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this chapter shall be provided for, encouraged, and assisted by the Administrator and the States. The Administrator, in cooperation with the States, shall develop and publish regulations specifying minimum guidelines for public participation in such processes.

With this pronouncement, it is clear that agencies need to provide the public a genuine opportunity to be heard when taking action to protect waters. Given necessary information, the public can assist in the enforcement of the Act’s provisions. Section 402 of the Act requires the EPA and state permitting authorities to provide an opportunity for the public to participate prior to issuing a permit. However, the Act does not itself specify mechanisms for public participation in

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91 See id. The EPA issues all NPDES permits in the District of Columbia, Massachusetts, Idaho, New Hampshire, New Mexico, and U.S. territorial possessions. Id. Every other state has primary permitting authority. Id.
92 EPA issues NPDES permits for some specific discharges in Oklahoma and Texas, for example for discharges relating to oil and gas drilling. See id.
96 See Jennifer L. Seidenberg, Note, Texas Independent Producers & Royalty Owners Ass’n v. Environmental Protection Agency: Redefining the Role of Public Participation in the Clean Water Act, 33 Ecology L.Q. 699, 719 (2007) (arguing that “public interest groups have shouldered much of the burden” for enforcing the CWA’s provisions).
the development and approval of NPDES permits. Rather, regulations developed by the EPA specify how the public is to be provided opportunities to be heard.\textsuperscript{98}

For many permits issued under the authority of the CWA, general participation regulations apply. General participation regulations require agencies to: share information with the public;\textsuperscript{99} delineate requirements for public hearings;\textsuperscript{100} follow protocol when holding public hearings;\textsuperscript{101} acknowledge advisory groups, and recommend involvement of groups in public participation;\textsuperscript{102} prepare summaries identifying participation activities;\textsuperscript{103} delineate procedures for permit enforcement and the investigation of alleged violations;\textsuperscript{104} and require public participation in rulemaking.\textsuperscript{105}

However, the general participation requirements do not apply to the NPDES permitting program.\textsuperscript{106} Instead, EPA promulgated specialized participation provisions for NPDES permits in part 122:

These provisions also establish the requirements for public participation in EPA and State permit issuance and enforcement and related variance proceedings, and in the approval of State NPDES programs. These provisions carry out the purposes of the public participation requirements of part 25 of this chapter, and supersede the requirements of that part as they apply to actions covered under this part and parts 123, and 124 of this chapter.\textsuperscript{107}

In addition, more specific permitting directives regarding public participation exist for selected categories of NPDES permits.\textsuperscript{108} The various federal regulations show a variety of public participation require-


\textsuperscript{99} 40 C.F.R. § 25.4.

\textsuperscript{100} Id. § 25.5.

\textsuperscript{101} Id. § 25.6.

\textsuperscript{102} Id. § 25.7.

\textsuperscript{103} Id. § 25.8.

\textsuperscript{104} Id. § 25.9.

\textsuperscript{105} 40 C.F.R. § 25.10.

\textsuperscript{106} See id. § 122.1.

\textsuperscript{107} Id. § 122.1(a)(3).

\textsuperscript{108} See, e.g., id. § 122.34(b)(2) (public participation recommendations for municipal separate storm sewer systems).
ments that permitting authorities must follow in issuing different types of permits. Given the incompleteness of statutory and regulatory public participation requirements, courts have been asked to decide whether regulatory authorities have provided adequate participation in various stages of the permitting process.

III. Judicial Interpretations of Public Participation in NPDES Permits

Permitting authorities and environmental groups have not always agreed on the meaning of public participation requirements with respect to the NPDES program. Disagreements about regulating pollution from CAFOs have presented courts with questions regarding the adequacy of public participation requirements.\(^{109}\) In *Waterkeeper Alliance, Inc. v. United States EPA*, the Second Circuit found provisions of the 2003 CAFO Rule failed to provide meaningful public participation in the development of nutrient management plans required in NPDES permits.\(^{110}\) In *Sierra Club Mackinac Chapter v. Department of Environmental Quality*, the Michigan Court of Appeals found Michigan’s provisions for discharging under a general permit failed to provide the public an opportunity to be heard as mandated by federal law.\(^{111}\)

Given these decisions, permitting authorities in other states may be confronted with challenges about the adequacy of their permitting provisions regarding public participation.\(^{112}\) The judiciary has considered three aspects of public participation in the permitting process: (1) the development and revision of effluent limitations; (2) the enforcement of participation requirements through citizen suits; and (3) special problems with notices of intent under general permits.

A. Development and Revision of Effluent Limitations

The CWA allows the discharge of limited pollutants under NPDES permits, which establish effluent limitations that reduce pollutant dis-


\(^{110}\) 399 F.3d at 503.

\(^{111}\) 747 N.W.2d at 333.

charges through the adoption of technology.\textsuperscript{113} Distinct NPDES permitting provisions exist for CAFOs, concentrated aquatic animal production facilities, aquaculture projects, stormwater discharges, and silviculture.\textsuperscript{114} However, a set of generalized public participation provisions apply to permits for all these sources.\textsuperscript{115} Some permitting authorities opted to reduce administrative burdens imposed by public participation through shortcuts or informal action.\textsuperscript{116} In other situations, the permitting authorities did not require permit applicants to submit all documentation showing how pollution would be minimized.\textsuperscript{117} Without appropriate documentation, permittees could set their own standards, which is contrary to principles delineated in the CWA.\textsuperscript{118} Furthermore, without adequate dialogue, the public may not express its views, and the permitting process may favor dischargers over environmental quality.\textsuperscript{119}

Environmental groups challenged the 2003 CAFO Rule in \textit{Waterkeeper}, arguing that the rule deprived the public of the opportunity to participate in the permitting process,\textsuperscript{120} because it did not require CAFO nutrient management plans to be included in permit applica-

\textsuperscript{113} 33 U.S.C. §§ 1251(e), 1311(e), 1342(a) (2006).
\textsuperscript{114} 40 C.F.R. § 122.23–27 (2010).
\textsuperscript{115} \textit{Id.} § 122.1(a)(3).
\textsuperscript{116} See, e.g., \textit{Sierra Club Mackinac Chapter}, 747 N.W.2d at 327–28 (arguing that the approval of a general permit without specifics of how pollutants will be minimized was adequate opportunity for the public to be heard).
\textsuperscript{118} \textit{Waterkeeper}, 399 F.3d at 498 (observing that the failure to meaningfully review nutrient management plans allows permittees to self-regulate); Envl. Def. Ctr. v. EPA, 344 F.3d 832, 854 (9th Cir. 2003) (observing that unreviewed documentation created “an impermissible self-regulatory system”).
The question before the court was whether permit applications without plans for managing nutrient pollutants allowed meaningful public input to the development of effluent limitations. To answer the petitioners’ question, the court looked at the statutory provisions on public participation. Section 101 of the CWA requires permitting authorities to facilitate public participation in the development and revision of effluent limitations contained in permit applications. Effluent limitations are prescribed by nutrient management plans developed by permit applicants. By failing to require the terms of nutrient management plans to be submitted as part of the NPDES permitting process, the public would not have access to information on effluent limitations.

Indeed, the court noted that by shielding nutrient management plans from public scrutiny, the CAFO Rule forestalled rather than encouraged public participation. This led the Waterkeeper court to find that the 2003 CAFO Rule violated the plain dictates of section 101. The court found that CAFO applicants for NPDES permits must submit nutrient management plans to permitting authorities, and the public has the right to participate in the development of effluent limitations with respect to all NPDES permits. Furthermore, by failing to provide for permitting authority review of the nutrient management plans, the rule was found to be arbitrary and capricious in violation of the Administrative Procedure Act. While the court’s decision only applies to the permitting process for CAFOs, its reasoning provides substantial weight for concluding that analogous requirements apply to other NPDES permits.

A similar result followed in the Sierra Club case, which concerned the approval of discharges under a general permit for CAFOs by means

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121 The rule instead provided that a “copy of the CAFO’s site-specific nutrient management plan must be maintained on site and made available to the Director upon request.” Preamble to the 2003 CAFO Rule, supra note 19, at 7268.
122 Waterkeeper, 399 F.3d at 503–04.
124 See Waterkeeper, 399 F.3d at 503–04.
125 Id. at 504.
126 Id.
127 See id.
of issuing notices of intent.\textsuperscript{130} Regulations adopted by the state permitting authority in Michigan required submission of nutrient management plans to the permitting authority, but did not provide for public participation in the plans’ development or revision.\textsuperscript{131} The \textit{Sierra Club} court concluded that Michigan’s general permitting regulations for CAFOs failed to satisfy the public participation requirements of the CWA.\textsuperscript{132} The court found that the public is entitled to participate in the development of nutrient management plans that set forth dischargers’ effluent limitations.\textsuperscript{133}

The EPA adopted a new federal CAFO Rule in 2008 that responded to issues noted by the \textit{Waterkeeper} court.\textsuperscript{134} The 2008 CAFO Rule sets forth provisions that require public participation before permitting authorities approve permits or notices of intent. Information on how permit applicants will implement effluent limitations to meet discharge requirements must be available to the public.\textsuperscript{135} With the \textit{Waterkeeper} decision and the 2008 CAFO Rule, public groups should have the information they need to be more involved in administrative actions regarding the authorization of discharges through NPDES permits.

\section*{B. Enforcement Through Citizen Suits}

The CWA and other environmental statutes include citizen suit provisions to supplement the governmental enforcement of provisions regulating pollution.\textsuperscript{136} Citizens adversely affected by pollutants entering federal waters are able to allege violations of effluent standards required by the Act.\textsuperscript{137} Citizens can also contest an order issued by a regulatory authority if it departs from what is required by statute or regula-

\begin{footnotesize}
\textsuperscript{130} See \textit{id.} at 325–26. Under Michigan’s provisions, a notice of intent was called a certificate of coverage. \textit{Id.}

\textsuperscript{131} \textit{Id.} at 334.

\textsuperscript{132} \textit{Id.} at 334–35 (citing 33 U.S.C. § 1251(e) (2006)).

\textsuperscript{133} \textit{Id.}

\textsuperscript{134} Preamble to the 2008 CAFO Rule, \textit{supra} note 30, at 70,418.

\textsuperscript{135} 40 C.F.R. §§ 122.23(h), 124.10 (2010) (requiring public opportunity to review nutrient management plans submitted with notices of intent and requiring public notice of draft permits).

\textsuperscript{136} See, \textit{e.g.}, Hallstrom v. Tillamook Cnty., 493 U.S. 20, 29 (1989) (noting that citizen suits supplement but do not supplant governmental action); Gwaltney of Smithfield, Ltd. v. Chesapeake Bay Found., 484 U.S. 49, 67 (1987) (limiting citizen suits to ongoing violations); \textit{see also} Pratt, \textit{supra} note 119, at 746–47 (discussing the legislative objectives in providing for citizen suits).

\end{footnotesize}
Furthermore, citizens may bring suit against the permitting authority for failure to perform an act or duty under the Act.\footnote{33 U.S.C. § 1365(a)(1).} Citizen suit provisions were crafted because governments had not proven to be effective at enforcing environmental controls.\footnote{Id. § 1365(a)(2).} The provisions were intended to motivate government enforcement and abatement proceedings.\footnote{See, e.g., Jeffrey G. Miller, Theme and Variations in Statutory Preclusions Against Successful Environmental Enforcement Actions by EPA and Citizens: Part One: Statutory Bars in Citizen Suit Provisions, 28 Harv. Envtl. L. Rev. 401, 408 (2004) (noting that with the adoption of environmental statutes, Congress was not confident that federal and state authorities would fully enforce them).} To temper a multitude of cases in the courts, most statutes include sixty-day notice periods to allow the government to address alleged violations.\footnote{Ellen P. Chapnick, Access to the Courts, in The Law of Environmental Justice: Theories and Procedures to Address Disproportionate Risks 395, 402 (Michael B. Gerrard & Sheila R. Foster eds., 2d ed. 2008).} Furthermore, citizens are precluded from suing if the government has filed an action to require compliance and is diligently prosecuting.\footnote{See 33 U.S.C. § 1365(b)(1)(B); see also Proffitt v. Rohm & Haas, 850 F.2d 1007, 1011, 1015 (3d Cir. 1988) (noting the role of public participation through citizen suits in reversing summary judgment awarded to a holder of an NPDES permit).} Thus, while allowing citizen participation, the citizen suit provisions simultaneously seek to preclude multiple litigation actions.

Plaintiffs in the Waterkeeper case challenged the public’s ability to bring citizen suits under the 2003 CAFO Rule.\footnote{Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 503 (2d Cir. 2005); Centner, supra note 120, at 371–72.} By depriving the public of information in nutrient management plans delineating specific effluent limitations for permittees, the 2003 CAFO Rule had compromised the ability of persons to bring citizen lawsuits.\footnote{Waterkeeper, 399 F.3d at 503–04; Centner, supra note 120, at 372.} Without information pertaining to permittees’ effluent limitations, “citizens [could not] determine whether there exist[ed] a deviation from” legal requirements.\footnote{Waterkeeper, 399 F.3d at 503–04. This is contrary to the public participation requirements of sections 101 and 402. 33 U.S.C. §§ 1251(e), 1342(j); Centner, supra note 120, at 371.} “Furthermore, the absence of a public plan frustrate[d] an evaluation of governmental diligence in prosecuting violators.”\footnote{Centner, supra note 120, at 371–72.}
The Waterkeeper court found that the 2003 CAFO Rule had “impermissibly compromise[d] the public’s ability to bring citizen-suits.” This involved the failure of the 2003 CAFO Rule to require permittees to submit appropriate documentation for evaluating compliance with the law. Waterkeeper noted that Congress intended citizens to “spur and supplement governmental enforcement actions.” Yet, citizen suits can only be successful if people have sufficient information to learn about violations. This means that opportunities for securing information and participating in environmental permitting and enforcement actions are important. The court concluded that the 2003 CAFO Rule impermissibly compromised rights accorded by the citizen suit provision of the CWA.

C. Notices of Intent Under General Permits

The third issue regarding public participation under NPDES permits involves the right of citizens to be heard in establishing discharges allowed by “notices of intent” under general permits. General permits were devised to respond to administrative burdens imposed by large numbers of similar dischargers in a geographical area. Industries are categorized according to similarities in discharge size and the nature of their runoff potential, and general permits are employed to allow coverage of multiple facilities. A permitting authority adopts a general permit with an opportunity for public input, and subsequently employs notices of intent to establish effluent limitations for dischargers. Discharges are authorized when the permitting authority issues a

148 Waterkeeper, 399 F.3d 486, 503 (citing the citizen suit provision of the CWA).
149 See id. at 502–03.
150 Id. at 503 (quoting S. Rep. No. 99–50 (1985)).
151 See, e.g., Pamela H. Bucy, Private Justice, 76 S. Cal. L. Rev. 1, 42 (2002) (noting that knowledge of violations often depends on having access to reports and the physical surveillance of discharge sources).
152 Waterkeeper, 399 F.3d at 503.
154 See, e.g., Envtl. Def. Ctr., Inc. v. EPA, 344 F.3d 832, 881 (9th Cir. 2003) (noting administrative burdens); see also Seidenberg, supra note 96, at 705 (discussing why the EPA adopted general permits for storm water discharges).
155 See 40 C.F.R. §§ 122.28, 123.25 (2010).
notice of intent.\textsuperscript{156} General permits have been adopted for stormwater discharges, construction activities, CAFOs, oil and gas extraction, water treatment facilities, coal mining activities, and sewage treatment facilities.\textsuperscript{157}

Under federal NPDES provisions, some dischargers are required to reduce discharges of pollutants to the “maximum extent practicable”\textsuperscript{158} and others must minimize nutrient movement to surface waters.\textsuperscript{159} To meet these discharge criteria, notices of intent include site-specific particulars on how the discharger will meet these limitations.\textsuperscript{160} Since general permits do not set forth the particulars of how pollutant discharges will be reduced to required levels, the permits do not enunciate effluent limitations.\textsuperscript{161} Rather, effluent limitations are established in notices of intent.\textsuperscript{162} To enable the public to participate in the establishment of effluent limitations, an opportunity for public participation is needed before the issuance of each notice of intent.\textsuperscript{163} Any permitting program that omits an opportunity for the public to evaluate the documentation set forth in a notice of intent would make it impossible to discern whether mandated discharge requirements are being met.\textsuperscript{164} Instead, without approval of effluent limitations, there is an impermissible self-regulatory permitting regime that does not comply with the dictates of the CWA.\textsuperscript{165}

Courts have struggled with how to handle public participation requirements with respect to discharges authorized by notices of intent. In \textit{Texas Independent Producers and Royalty Owners Association v. EPA}, EPA argued that since a notice of intent is not equivalent to a permit, the permitting requirements of the CWA did not apply to its issuance.\textsuperscript{166} The Seventh Circuit concluded that because notices of intent were not

\begin{itemize}
\item \textsuperscript{156} Gaba, \textit{supra} note 153, at 411.
\item \textsuperscript{157} See id. at 429–32; EPA, \textit{supra} note 153, at 5.
\item \textsuperscript{159} 40 C.F.R. § 412.4(c)(2) (2010) (for Large CAFOs).
\item \textsuperscript{160} See Gaba, \textit{supra} note 153, at 466.
\item \textsuperscript{161} See id. at 433. Discharges cannot be approved without documentation setting forth effluent limitations. See 33 U.S.C. §§ 1311, 1342 (addressing effluent limitations and requiring permits).
\item \textsuperscript{162} See Gaba, \textit{supra} note 153, at 466.
\item \textsuperscript{164} See, e.g., id. at 334–35.
\item \textsuperscript{165} Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 498 (2d Cir. 2005) (agreeing with environmental petitioners that a self-regulatory permitting regime is impermissible).
\item \textsuperscript{166} Texas Indep. Producers & Royalty Owners Ass’n v. EPA, 410 F.3d 964, 978 (7th Cir. 2005).
\end{itemize}
permits or permit applications, general permits are the document that receive regulatory approval.\textsuperscript{167} Deferring to the EPA, the court declined to require public input before approval of notices of intent.\textsuperscript{168} However, the Ninth Circuit viewed general permits differently in \textit{Environmental Defense Center v. EPA}.\textsuperscript{169} The Ninth Circuit held that notices of intent could be treated as functional equivalents of NPDES permits, and therefore availability of permit application materials and an opportunity for public participation in the permitting process applied to the issuance of notices of intent.\textsuperscript{170}

The \textit{Waterkeeper} and \textit{Sierra Club} decisions suggest that the decisions in \textit{Texas Independent Producers} and \textit{Environmental Defense Center} are dated.\textsuperscript{171} The CWA’s public participation requirements set forth in subsection 101(e) apply not only to permit applications, but to all standards, effluent limitations, plans, and programs.\textsuperscript{172}

The \textit{Texas Independent Producers} decision failed to uphold the public’s right to participate in developing effluent limitations as mandated by the CWA, because the court only mandated public participation at the general permit stage.\textsuperscript{173} The public’s ability to participate in the development of a general permit does not include participation in the establishment of effluent limitations because the general permit does not enumerate effluent limitations for individual dischargers.\textsuperscript{174} Rather, notices of intent contain effluent limitations for individual applicants.\textsuperscript{175} With respect to the \textit{Environmental Defense Center} holding, no decision of functional equivalency is required before addressing public participation requirements.\textsuperscript{176} Because subsection 101(e) applies to effluent limitations that are set forth in notices of intent, the public must be given an

\begin{itemize}
  \item \textsuperscript{167} \textit{Id.}
  \item \textsuperscript{168} \textit{Id.}
  \item \textsuperscript{169} \textit{Envtl. Def. Ctr., Inc. v. EPA}, 344 F.3d 832, 857 (9th Cir. 2001).
  \item \textsuperscript{170} \textit{Id.} at 857–58.
  \item \textsuperscript{172} 33 U.S.C. § 1251(e) (2006).
  \item \textsuperscript{173} See \textit{Texas Indep. Producers}, 410 F.3d at 978.
  \item \textsuperscript{174} See \textit{id.}
  \item \textsuperscript{175} Under subsection 101(e), the public needs to be provided an opportunity to participate in the development of effluent limitations during the approval of a notice of intent. 33 U.S.C. § 1251(e); see \textit{Gaba, supra} note 153, at 472–73 (maintaining that a minimal level of public access to notices of intent containing effluent limitations is required by the CWA).
  \item \textsuperscript{176} See \textit{Envtl. Def. Ctr.}, 344 F.3d at 853–54. (addressing functional equivalency).
\end{itemize}
opportunity to participate in their development.\textsuperscript{177} Any regulatory scheme that allows discharges from applicants without public input concerning effluent limitations is inconsistent with the public participation requirements delineated by the CWA.\textsuperscript{178} Given subsection 101(e)’s public participation requirement for effluent limitations, permitting authorities need to revise authorization processes that do not include public participation in the issuance of notices of intent.\textsuperscript{179}

Public participation does not mean that the permitting authority must hold a public hearing.\textsuperscript{180} Given the focus and objectives of general permits, public input to notices of intent might involve notification of the discharger’s proposal and an opportunity to comment prior to the authorization of a discharge by the permitting authority.\textsuperscript{181} The CWA and federal and state regulations delineate criteria to determine when public hearings are required.\textsuperscript{182} If there is insufficient public interest in the particulars of a notice of intent, written documentation can provide a meaningful opportunity to be heard.\textsuperscript{183}

IV. Public Participation and the Diligent-Prosecution Bar of Citizen Suits

Congress included citizen suit provisions in most major environmental statutes so that citizens could augment federal and state enforcement efforts.\textsuperscript{184} In suits against violators, citizens may seek civil penalties or an injunction.\textsuperscript{185} While more frequent and effective enforcement is generally recognized as the main justification for citizen suit provisions, another significant goal was citizen participation in en-

\textsuperscript{177} 33 U.S.C. § 1251(e).
\textsuperscript{178} See Seidenberg, \textit{supra} note 96, at 720 (observing that the broad suggestions in general permits do not allow meaningful review of substantive decisions).
\textsuperscript{179} See 33 U.S.C. § 1251(e).
\textsuperscript{180} See id. Under the NPDES program, an opportunity for a public hearing must be given prior to the issuance of a permit. \textit{Id.} § 1342(a) (1).
\textsuperscript{181} For CAFOs, regulations provide that 40 C.F.R. § 124.11–.13 delineate requirements for hearings. 40 C.F.R. § 122.23(h)(1) (2010). Interested persons may request a hearing or the regional administrator or state director may hold a hearing due to public interest or to clarify issues. \textit{Id.} § 124.11, 124.12.
\textsuperscript{182} 33 U.S.C. § 1251(e); see, e.g., 40 C.F.R. § 124.11, 124.12 (CAFO regulations).
\textsuperscript{183} See Lockett v. EPA, 319 F.3d 678, 686–87 (5th Cir. 2003) (finding a state procedure allowing public participation without a hearing may be sufficient to meet federal citizen participation requirements).
\textsuperscript{184} See CHAPNICK, \textit{supra} note 142, at 402; see also Miller, \textit{supra} note 140, at 416–17 (noting the citizen suit provisions of major federal environmental statues).
forcement.\textsuperscript{186} This involves the ability to be heard in administrative processes.\textsuperscript{187} For the CWA, general citizen suit provisions are set forth in section 505.\textsuperscript{188}

To preclude multiple lawsuits against alleged violators, Congress delineated three types of limitations in the CWA: notice of violation, delay between notice and commencement of suit, and a bar for diligent prosecution.\textsuperscript{189} With respect to the bar for diligent prosecution, two separate limitations are delineated.\textsuperscript{190} Subsection 505(b) bars citizen suits when the Administrator or state has commenced and is diligently prosecuting an action to require compliance.\textsuperscript{191} The second limitation involves administrative penalty actions under subsection 309(g).\textsuperscript{192} After facilitating the imposition of administrative penalties without compliance, subsection 309(g) precludes duplicative penalties for the same violation.\textsuperscript{193} Paragraph (6)(A)(ii) of subsection 309(g) bars citizen suits if a state permitting authority has commenced and is diligently prosecuting a state administrative penalty action comparable to federal law.\textsuperscript{194} If a defendant raises the diligent-prosecution bar, the court lacks jurisdic-

\textsuperscript{186} Miller, \textit{supra} note 140, at 420 (discussing the legislative history of citizen suits).

\textsuperscript{187} See \textit{id.}


\textsuperscript{189} Under the CWA, no action can be commenced prior to sixty days after notice was given to the EPA, the violator, and the appropriate state. \textit{Id.} § 1365(b)(1).

\textsuperscript{190} \textit{Id.} §§ 1319 (g)(6), 1365(b)(1)(B).

\textsuperscript{191} \textit{Id.} § 1365(b)(1)(B).

\textsuperscript{192} \textit{Id.} § 1319(g)(6).

\textsuperscript{193} \textit{Id.; see Ark. Wildlife Fed’n v. ICI Americas, Inc., 29 F.3d 376, 381 (8th Cir. 1994) (maintaining that the precise public participation provisions found in the CWA are not required but rather that the “overall regulatory scheme” needs to afford significant citizen participation); N. & S. Rivers Watershed Ass’n, Inc. v. Town of Scituate, 949 F.2d 552, 556 (1st Cir. 1991) (maintaining that if corrective action is taken and diligently pursued, duplicative citizen actions are not needed).}

\textsuperscript{194} Specifically, the limitation concerning a comparable state action reads:

\begin{itemize}
  \item[(6)] Effect of order.
    \begin{itemize}
      \item (A) Limitation on actions under other sections. Action taken by the Administrator or the Secretary, as the case may be, under this subsection shall not affect or limit the Administrator’s or Secretary’s authority to enforce any provision of this chapter; except that any violation . . . (ii) with respect to which a State has commenced and is diligently prosecuting an action under a State law comparable to this subsection . . . shall not be the subject of a civil penalty action under subsection (d) of this section or section 1321(b) of this title or section 1365 of this title.
    \end{itemize}
\end{itemize}

33 U.S.C. § 1319(g)(6)(A)(ii); see also McAbee v. City of Fort Payne, 318 F.3d 1248, 1256 (11th Cir. 2003) (finding state law not to be comparable to the administrative penalties of § 1319(g)); Citizens for a Better Env’t-Cal. v. Union Oil Co. of Cal., 83 F.3d 1111, 1118 (9th Cir. 1996) (finding action under state law was not comparable); \textit{Scituate}, 949 F.2d at 555 (noting that the citizen suit claim vanishes if the state is prosecuting diligently).
tion if it finds that the “state has commenced and is diligently prosecuting the same violations under a state law ‘comparable’ to subsection [309(g)].”

Defendants to CWA citizen suit actions have claimed that various state administrative actions preclude citizen suit enforcement due to the diligent-prosecution bar of subsection 309(g)(6)(A)(ii). Differences over what constitutes a comparable state action mean that the comparability requirement is a disputatious issue. Early cases in the First and Eighth Circuits looked to the state’s total statutory enforcement scheme to apply an “overall comparability” test that gave considerable deference to the state’s enforcement efforts. In North and South Rivers Watershed Association v. Town of Scituate, the First Circuit established major parameters for evaluating comparability for precluding citizen action due to diligent prosecution by a state regulatory authority.

Three years later, the Eighth Circuit explained that under the rationale of the Scituate court, the public only needed “a meaningful opportunity to participate at significant stages of the decision-making pro-

195 Paper, Allied-Indus., Chem. & Energy Workers Int’l Union v. Cont’l Carbon Co., 428 F.3d 1285, 1288 (10th Cir. 2005) (quoting 33 U.S.C. § 1319(g)(6)(A)(ii)) (noting that federal courts have no jurisdiction under the CWA over cases where states are diligently prosecuting state claims comparable to federal violations); Friends of Milwaukee’s Rivers v. Milwaukee Metro. Sewerage Dist., 382 F.3d. 743, 751–52 (7th Cir. 2004) (analyzing subject matter jurisdiction under section 1319(g) of the CWA); ICI Americas, 29 F.3d at 378–82 (analyzing the jurisdictional bar of section 1319(g)(6)(A)).

196 See Miller, supra note 185, at 30–33 (providing a detailed examination of the use of state action to preclude citizen suits).

197 See Cont’l Carbon, 428 F.3d at 1293–94 (noting that the Tenth Circuit had never analyzed appropriate factors for determining comparability but other circuits employed different standards). See generally Lisa Donovan, Note, Power to the People: The Tenth Circuit and the Right of Citizens to Sue for Equitable Relief Under Section 309(g)(6)(A) of the Clean Water Act, 34 B.C. Envtl. Aff. L. Rev. 143 (2007) (discussing the diligent-prosecution bar of section 1319(g) to advocate for a broader role in citizen participation).

198 See Cont’l Carbon, 428 F.3d at 1294 (noting the Eighth Circuit’s “overall comparability” standard” in ICI Americas); McAbee, 318 F.3d at 1255 (noting the rationale of the overall comparability test used by the Scituate court).

199 See ICI Americas, 29 F.3d at 381 (maintaining that the precise public participation provisions found in the CWA are not required but rather that the “overall regulatory scheme” needs to afford significant citizen participation); N. & S. Rivers Watershed Ass’n, Inc. v. Town of Scituate, 949 F.2d 552, 556 (1st Cir. 1991) (maintaining that if corrective action has been taken and was diligently pursued, then duplicative citizen actions are not needed).

200 Scituate, 949 F.2d at 555–58; see also Miller, supra note 185, at 39 (examining the shortcomings of Scituate); Kirstin Etela, Sixteenth Annual Pace National Environmental Law: Moot Court Competition, Judges’ Bench Memorandum, 21 PACE ENVTL. L. REV. 355, 406–09 (2004) (identifying flaws with the Scituate decision because the court ignored the plain language of the statute and the legislative history of subsection 1319(g)).
cess” under state law to satisfy comparability.\textsuperscript{201} In \textit{Arkansas Wildlife Federation v. ICI Americas, Inc.}, the Eighth Circuit decided that states were afforded latitude in selecting enforcement mechanisms under subsection 309(g).\textsuperscript{202} Without acknowledging subsection 101(e) of the CWA, which encourages public participation in the enforcement of regulations,\textsuperscript{203} the court opined that comparable public participation involved “significant citizen participation.”\textsuperscript{204} Although the state scheme omitted the same public notice and comment provisions as those found in subsection 309(g), the court found that the scheme was comparable to the Federal Act.\textsuperscript{205} The \textit{Scituate} and \textit{ICI Americas} cases established precedents that circumscribed citizens’ ability to maintain enforcement actions against alleged violators of the CWA.\textsuperscript{206}

In \textit{Jones v. City of Lakeland}, the Sixth Circuit evaluated the enforcement provisions of the Tennessee Water Quality Control Act to determine whether citizens had a “meaningful opportunity to participate” in enforcement actions comparable to what is provided under federal law.\textsuperscript{207} The court did not enunciate any comparability test but rather looked at whether the overall state regulatory scheme afforded citizens a meaningful opportunity to be heard.\textsuperscript{208} Under Tennessee’s statutory scheme, citizens could invoke administrative relief under Tennessee law in situations where the Tennessee Water Quality Control Board had entered and filed a consent agreement.\textsuperscript{209} Given the limited access for public participation, Tennessee’s provisions were not comparable to federal law and the diligent-prosecution bar of subsection 309(g)(6)(A)(ii) did not preclude a citizen suit against the city.\textsuperscript{210}

Subsequent judicial opinions have found that the overall comparability test establishes a nebulous standard that provides little guidance


\textsuperscript{202} See \textit{ICI Americas}, 29 F.3d at 380–81 (finding that regulatory authorities are entitled to appropriate deference in their enforcement efforts).


\textsuperscript{204} See \textit{ICI Americas}, 29 F.3d at 381.

\textsuperscript{205} See id. at 381–82.

\textsuperscript{206} See \textit{ICI Americas}, 29 F.3d at 381–83; N. & S. Rivers Watershed Ass’n v. Town of Scituate, 949 F.2d 552, 557–58 (1st Cir. 1991).

\textsuperscript{207} 224 F.3d 518, 523 (6th Cir. 2000).

\textsuperscript{208} See id. The dissent cited \textit{Scituate} to conclude that the state federal provisions were comparable. Id. at 526 (Norris, J., dissenting).

\textsuperscript{209} See id. at 523–24.

\textsuperscript{210} Id. at 524 (finding that the plaintiffs’ complaint set forth a cognizable claim for which relief could be granted).
for determining whether a citizen action is comparable to a state’s action. In analyzing the language of subsection 309(g), including components set forth in other paragraphs of the subsection, courts rejected the overall comparability test in favor of a “rough comparability” approach. Subsection 309(g) says that the limitation against citizen suits applied to actions “to which a State has commenced and is diligently prosecuting an action under a State law comparable to this subsection.” Whereas a few courts looked at comparable penalty provisions, the Ninth, Tenth, and Eleventh Circuits examined subsection 309(g) as a whole to discern three sets of procedures that need to be comparable: penalty assessment, public participation, and judicial review procedures.


212 See, e.g., Paper, Allied-Indus., Chem. & Energy Workers Int’l Union v. Cont’l Carbon Co., 428 F.3d 1285, 1300 (10th Cir. 2005) (rejecting the interpretation of subsection 309(g) reached by the Scituate court); McAbee, 318 F.3d at 1255–56 (noting the legislative history supports rough comparability); Citizens for a Better Env’t-Cal. v. Union Oil Co., 83 F.3d 1111, 1118 (9th Cir. 1996) (disagreeing with Scituate based on the language of the CWA, and stating that state actions should not “be given broader preclusive effect than the administrative actions of the EPA”); Wash. Pub. Interest Research Grp. v. Pendleton Woolen Mills, 11 F.3d 883, 885 (9th Cir. 1993) (observing that there was no legislative history demonstrating a congressional desire to bar more than duplicative administrative penalties); Pennenvironment v. RRI Energy Ne. Mgmt. Co., No. 07–475, 2009 U.S. Dist. LEXIS 118955, at *712–13 (W.D. Pa. Dec. 22, 2009) (noting that the legislative history supported a conclusion that the diligent-prosecution bar only applies to duplicative penalties); Powellton Coal Co., 662 F. Supp. 2d at 527 (citing legislative history to support rough comparability between each class of provisions); Old Timer, Inc. v. Blackhawk-Cent. City Sanitation Dist., 51 F. Supp. 2d 1109 (D. Colo. 1999) (noting that the legislative history supports the conclusion that subsection 309(g) was not “to preclude citizen suits . . . when an administrative penalty proceeding has not yet been commenced”); L.E.A.D. Grp. of Berks v. Exide Corp., No. 96–3030, 1999 U.S. Dist. LEXIS 2672, at *97 (E.D. Pa. Feb. 19, 1999) (observing the legislative history and its intent to preclude “dual enforcement actions or penalties for the same violation”); Molokai Chamber of Commerce v. Kukui (Molokai), Inc., 891 F. Supp. 1389, 1403 (D. Haw. 1995) (noting Congress only intended the bar on citizen suits to apply to administrative penalty actions under subsection 309(g)); Save Our Bays & Beaches v. City & Cnty. of Honolulu, 904 F. Supp. 1098, 1132 (D. Haw. 1994) (stating that subsection 309(g) bars citizen suits only if state law “provide[s] for a right to hearing and for public notice and participation procedures similar to those set forth in section 309(g)” (quoting 1133 Cong. Rec. S737 (daily ed., Jan. 14, 1987) (statement of Sen. Chafee))).


214 See Cont’l Carbon, 428 F.3d at 1294 (focusing on the three categories of provisions in subsection 309(g)); McAbee, 318 F.3d at 1254–56 (declining to adopt the standard enunciated by the Scituate court and focusing on three classes of provisions); Citizens for a Better Env’t, 83 F.3d at 1115–18 (looking at the comparability of penalty provisions and their assessment).
The Eleventh Circuit’s decision in *McAbee v. City of Fort Payne* illustrates the approach of these circuit courts. In rejecting the overall comparability test employed by the *Scituate* and *ICI Americas* courts, the Eleventh Circuit observed that the test involved weighing incommensurable values and created uncertainty. Instead, the *McAbee* court employed a rough comparability standard for determining whether the citizen suit was precluded by state action. The court examined the state’s public participation provisions with those in subsection 309(g)(4) and found they were not comparable. Because the state did not offer comparable opportunities for the public to participate in administrative enforcement penalties, the diligent-prosecution bar provided by subsection 309(g) did not preclude the citizen suit.

A rough comparability interpretation of subsection 309(g) makes it easier for plaintiffs to qualify for jurisdiction in a citizen suit. Citizen suits are only precluded if the defendant establishes rough comparability between each set of state procedures and federal law. Courts that ignore one or more of these components in finding a state action to be comparable to subsection 309(g) disregard the statutory scheme established by Congress. The plain meaning of subsection 309(g) is that comparable state actions must involve similar penalties, participation opportunities, and opportunities for judicial review.

While federal circuit courts have reached conflicting interpretations on when subsection 309(g)(6) bars jurisdiction of a citizen suit, courts tend to agree that a state action is not comparable if there was no opportunity for the public to participate in a significant stage. A
majority of courts have concluded that to be comparable to subsection 309(g), the state needs to afford citizens reasonable opportunities to participate in the administrative enforcement procedure.\textsuperscript{225} Courts have recognized that Congress intended that citizens be active in overseeing the water quality standards of the CWA.\textsuperscript{226}

V. Authorizing Discharges Without Public Participation

Although the diligent-prosecution bar does not address public participation in the NPDES permit approval process,\textsuperscript{227} the judicial interpretations of the statutory provisions are instructive.\textsuperscript{228} Subsection 309(g)(4) of the CWA delineates rights for the public before the assessment of an administrative penalty.\textsuperscript{229} Subsection 101(e) commands that public participation shall be provided and encouraged in the development, revision, and enforcement of effluent limitations set forth in NPDES permits.\textsuperscript{230} Both statutory provisions concern transparency: providing citizens notice of what the administering agency is doing, followed by an opportunity to participate prior to the agency's final action.\textsuperscript{231} For the diligent-prosecution bar, state enforcement agencies must provide a meaningful opportunity for the public to participate in significant stages of administrative penalty actions.\textsuperscript{232} Under subsection 101(e), the public must have meaningful opportunity to comment on


\textsuperscript{226} See \textit{McAbee}, 318 F.3d at 1255–56 (noting that legislative history supports a finding that state laws must provide significant public participation opportunities in order to be comparable to Section 309(g)).


\textsuperscript{228} See generally \textit{McAbee}, 318 F.3d at 1256; \textit{Jones}, 224 F.3d at 524.

\textsuperscript{229} See 33 U.S.C. § 1319(g) (4).

\textsuperscript{230} See id. § 1251(e).

\textsuperscript{231} See id. §§ 1251(e), 1319(g)(4)(A).

proposed effluent limitations before an authorized state regulatory agency issues a permit or notice of intent allowing for the discharge of pollutants.\textsuperscript{233}

The judicial responses to citizen suits addressing the diligent-prosecution bar show that the omission of an opportunity for public participation means the state action is not comparable.\textsuperscript{234} When a state action is not comparable, citizens may maintain their citizen suits.\textsuperscript{235} The lesson from these cases is that Congress intended the public to have an opportunity to participate in the imposition of administrative penalties under subsection 309(g).\textsuperscript{236} Public participation is important; any regulatory or administrative action that forgoes providing an opportunity for citizen input may be challenged, and failure to provide an opportunity for public participation means citizen suits are possible.\textsuperscript{237}

With respect to the NPDES permitting program, Congress was even more emphatic in providing opportunities for the public to participate: public participation in establishing effluent limitations is to be encouraged.\textsuperscript{238} Moreover, subsection 1342(a) of the CWA also requires an opportunity for a hearing prior to issuance of an NPDES permit.\textsuperscript{239} Any regulation or action by the EPA or state permitting authority that does not provide adequate opportunities for public participation in the development, revision, or enforcement of a permit offends the statutory requirement.\textsuperscript{240} How should courts respond to complaints that the public was excluded from being able to participate in the development or revision of effluent limitations? Cases addressing the issue of lack of participation in proceedings involving NPDES permits may be differentiated into two groups: inadequate participation before issuing permits, and inadequate participation during purported modifications.

\textsuperscript{233} See 33 U.S.C. 1251(e); see also Ohio Valley Envtl. Coal., Inc. v. Apogee Coal Co., 555 F. Supp. 2d 640, 647 (S.D. W. Va. 2008) (concluding that failure to comply with public notification procedures meant that the agency could not modify a permit through a compliance order).

\textsuperscript{234} See, e.g., McAbee, 318 F.3d at 1256; Jones, 224 F.3d at 524.

\textsuperscript{235} See, e.g., McAbee, 318 F.3d at 1257.

\textsuperscript{236} See Save Our Bays & Beaches v. City & Cnty. of Honolulu, 904 F. Supp. 1098, 1132 (D. Haw. 1994); see also 33 U.S.C. §§ 1251(e), 1319(g)(4)(A).

\textsuperscript{237} See, e.g., McAbee, 318 F.3d at 1256–57.

\textsuperscript{238} 33 U.S.C. § 1251(e) (2006).

\textsuperscript{239} Id. § 1342(a)(1), (b)(3).

\textsuperscript{240} See id.
A. Inadequate Participation Before Issuing Permits

In cases involving inadequate public participation in the issuance of new permits, the most direct and effective citizen suit action is to challenge the government’s action.\textsuperscript{241} Citizens can allege the regulations fail to comport to federal participation requirements, as occurred in Waterkeeper Alliance, Inc. v. United States EPA, or they may allege that the regulatory authority failed to adhere to public participation requirements set forth in statutory or regulatory provisions.\textsuperscript{242} These suits would vacate the offending provisions or request an order to secure compliance with public participation requirements.

In discussing problems with the regulation of discharges from CAFOs, citizen suits forced the EPA to revise the federal CAFO Rule.\textsuperscript{243} Due to a citizen lawsuit commenced by the Natural Resources Defense Council in 1989, the EPA agreed to amend the CAFO Rule.\textsuperscript{244} In the 2003 CAFO Rule, the EPA omitted a requirement under which the public would have access to information on effluent limitations in CAFO NPDES permit applications.\textsuperscript{245} The citizen suit challenge in Waterkeeper led the Second Circuit to find that the 2003 CAFO Rule violated the CWA by forestalling public participation.\textsuperscript{246} As a result of the Waterkeeper lawsuit, the EPA amended its regulations in 2008 to require opportunities for public input prior to the approval of discharges through notices of intent and permits.\textsuperscript{247}

For individual NPDES permits, regulations require public notice of draft permits\textsuperscript{248} and the 2008 CAFO Rule requires applicants to submit a nutrient management plan.\textsuperscript{249} With the submission of nutrient management plans, the public will have an opportunity to evaluate the

\textsuperscript{241} See, e.g., Waterkeeper Alliance, Inc. v. U.S. EPA, 399 F.3d 486, 524 (2d Cir. 2005).
\textsuperscript{242} See id. at 524 (vacating the 2003 CAFO Rule’s provisions concerning inadequate opportunity for public participation).
\textsuperscript{244} See id. at 10–11.
\textsuperscript{245} See Preamble to the 2003 CAFO Rule, supra note 19, at 7268 (providing in 40 C.F.R. § 122.42(c)(2)(ii) that nutrient management plans containing effluent limitations must be available to the director but not the public). The Waterkeeper court made the point that the rule only requires that copies of the nutrient management plan be made available to the director and not the public. Waterkeeper, 399 F.3d at 503.
\textsuperscript{246} Waterkeeper, 399 F.3d at 503–04.
\textsuperscript{247} See Preamble to the 2008 CAFO Rule, supra note 30, at 70,468, 70,480–81.
\textsuperscript{248} 40 C.F.R. § 124.10(a) (2010).
\textsuperscript{249} Id. § 122.21(i)(x) (permit applications must contain nutrient management plans).
effluent standards set forth in the applications.²⁵⁰ With respect to notices of intent under general permits, each notice must include a nutrient management plan that is made available for public review.²⁵¹ Permitting authorities are required to respond to significant comments and may require revisions to submitted nutrient management plans.²⁵² These provisions definitively establish opportunities for public participation prior to approval of documentation allowing discharges.²⁵³

However, some state permitting authorities may not have adopted similar provisions.²⁵⁴ State CAFO regulations that fail to allow citizen input to the development of effluent limitations should be found to be arbitrary and capricious.²⁵⁵ Similarly, state permitting requirements for discharges from other sources can be challenged if they fail to provide reasonable opportunity for public input as required by subsection 101(e) of the CWA.²⁵⁶ Waterkeeper establishes that whenever a permitting authority’s regulations fail to provide an opportunity for public participation in the development or revision of a permit, citizens are able to bring a citizen suit to secure an opportunity for public input.²⁵⁷

B. Inadequate Participation in Modifying a Permit

Several courts have considered citizen suits addressing discharges where permitting authorities failed to provide the public an opportunity to be heard prior to the modification of permits authorizing discharges.²⁵⁸ The courts’ decisions suggest that agency action without pro-

²⁵⁰ Id. § 122.23(h). For draft permits, the public must have thirty days for commenting on the permit application. Id. § 124.10(b).
²⁵¹ Id. § 122.23(h) (owners and operators employing notices of intent under general permits must submit nutrient management plans).
²⁵² Id. (requiring the director to make notices of intent available for public review).
²⁵⁵ See Waterkeeper Alliance, Inc. v. U.S EPA, 399 F.3d 486, 503 (2d Cir. 2005).
²⁵⁶ See 33 U.S.C. § 1251(e)
²⁵⁷ See Waterkeeper, 399 F.3d at 503, 524.
²⁵⁸ See United States v. Smithfield Foods, Inc., 191 F.3d 516, 524, 526 (4th Cir. 1999) (finding that orders by a state permitting authority did not modify a permit); Citizens for a Better Env’t-Cal. v. Union Oil Co. of Cal., 83 F.3d, 1111, 1119–20 (9th Cir. 1996) (concluding that a cease and desist order did not modify a permit, and noting that public participation requirements apply to the permit modification process); Profitt v. Rohm & Haas, 850 F.2d 1007, 1012 (3d Cir. 1988) (noting that substantial changes to a permit require public notice under federal regulation then in effect); Envtl. Coal. v. Apogee Coal Co., 555 F. Supp. 2d 640, 645–47 (S.D. W. Va. 2008) (finding that failure to provide public participation meant the permit had not been modified).
viding the public an opportunity to be heard is a serious problem. Responses to this problem include vacating deficient orders or finding the administrative actions to be invalid or void. The attempted modifications would be ineffective in providing legal authority for discharges so that the discharge limitations of the existing, unrevised permit would apply. Thus, although the permit would not contain the terms requested by the permittee to authorize discharges, the underlying original permit would address discharges.

The Third, Fourth, and Ninth Circuits have considered efforts to modify permits without public participation and offered insights on what to do when the public is denied an opportunity to participate in the establishment of effluent limitations. In Proffit v. Rohm & Haas, the Third Circuit considered a purported modified permit. The evidence showed that substantial changes were incorporated in an amended permit without an opportunity for public participation. After noting that amended permits with substantial changes required public notice of the proposed modification to inform interested and potentially interested persons of discharges, the court found that the citizen suit allegations involved violations of effluent limitations established in both the original and amended permits. Therefore, the circuit court did “not decide the nice question of which permit, if any, is applicable.” Rather, the plaintiff had alleged a continuing violation so the trial court had erred in dismissing the suit.

In Citizens for a Better Environment-California v. Union Oil Co. of California, the district court declined to dismiss a citizen suit’s effluent

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260 Riverkeeper, 675 F. Supp. 2d at 345, 346.

261 See id.

262 See Proffitt, 850 F.2d at 1012.

263 Id.

264 Id. at 1013–14. The court declared:

We see no reason why these substantial changes are not encompassed within the regulation that required “public notice of the proposed issuance, denial or modification of every permit . . . in a manner designed to inform interested and potentially interested persons of the discharge and of the proposed determination to issue, deny, or modify a permit for the discharge.”

Id. at 1013 (citing 40 C.F.R. § 125.32(a) (1975)).

265 Id. at 1014.

266 Id.
standards claim.\textsuperscript{267} The defendant had maintained that a cease and desist order modified its permit compliance date to provide a defense against the action.\textsuperscript{268} In affirming the district court, the Ninth Circuit concluded that there was no modified permit.\textsuperscript{269} Because the permit had not been modified, the court never decided what happens when a permitting agency fails to conform with public participation requirements.\textsuperscript{270}

The Fourth Circuit had an opportunity to consider the modification of a permit in \textit{United States v. Smithfield Foods, Inc.}\textsuperscript{271} The defendant argued that its permit had not been violated because orders from the state permitting authority “superseded and revised” the permit.\textsuperscript{272} In rejecting this argument, the district court had found that because the defendant “did not follow the procedures required for the modification of a permit, and none of the [permitting authority’s] Special Orders and letters were issued in accordance with the permit modification procedures,” the permit was not modified.\textsuperscript{273} Affirming the district court’s reasoning, the Fourth Circuit agreed that the permit had not been revised so the district court was correct in granting the plaintiff summary judgment on the issue of liability.\textsuperscript{274}

Federal district courts have cited these three circuit court cases and have extended the reasoning to find that the absence of an opportunity for public participation may mean that an administrative action does not revise a permit. Five district court cases may be examined to discern their responses to actions intended to modify permits.

In \textit{Ohio Valley Environmental Coalition, Inc. v. Apogee Coal Co.}, the defendant of a citizen suit claimed that a compliance order suspended the limits of a permit issued under a state-run NPDES program.\textsuperscript{275} Given the terms of the compliance order, if it modified the permit, the permittee was in compliance with pollutant limitations and the plaintiff would have no cause of action.\textsuperscript{276} In analyzing the allegations of permit viola-

\textsuperscript{267} 83 F.3d, 1111, 1113 (9th Cir. 1996).
\textsuperscript{268} Id. at 1119.
\textsuperscript{269} Id.
\textsuperscript{270} Id. at 1119–20.
\textsuperscript{271} 191 F.3d 516, 520 (4th Cir. 1999).
\textsuperscript{272} Id. at 523.
\textsuperscript{273} Id. at 524 (quoting United States v. Smithfield Foods, Inc., 965 F. Supp. 769, 787 (E.D. Va. 1997)).
\textsuperscript{274} Id. at 526.
\textsuperscript{276} Id. at 644. Plaintiffs would be estopped from bringing suit if the violations were “wholly past.” Id.
tions, the court concluded that three circuit courts “have held that a modification to a permit will not prevent a citizen suit action on the terms of the underlying permit if that modification does not comport with proper procedure,” citing Proffit, Citizens for a Better Environment, and Smithfield Foods. Based upon these precedents, the district court held that any procedurally flawed modification “cannot change the terms of the underlying permit.”

A district court in New York made a number of pronouncements about modifying permits in Riverkeeper, Inc. v. Mirant Lovett, LLC. An environmental plaintiff argued that a defendant’s power station was violating the provisions of its state permit. The defendant countered this allegation by claiming that a consent order signed by the state permitting authority had modified the terms of the permit so there was no violation. In concluding that the consent order did not modify the permit, the Riverkeeper court viewed the consent order as establishing a compliance schedule that provided for deferring the enforcement of requirements set forth in the permit. As a settlement for the selective non-enforcement of permit terms, the consent order did not bar citizen suits under the CWA. The Riverkeeper court also commented that because federal law requires public participation in the revision of a permit, it was unlikely that a consent order involving a permitting authority and a defendant would offer such an opportunity.

Two cases from Pennsylvania considered citizen suits with issues about whether permits had been modified. In Profitt v. Lower Bucks County Joint Municipal Authority, a permitting authority issued a consent order establishing interim, lower effluent limitations than were present in the

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277 Id. at 645 (citing United States v. Smithfield Foods, 191 F.3d 516 (4th Cir. 1999); Citizens for a Better Env’t–Cal. v. Union Oil Co. of Cal., 83 F.3d 1111 (9th Cir. 1996); Profitt v. Rohm & Hass, 850 F.2d 1007 (3d Cir. 1988)). The court also cited its earlier decision in Ohio Valley Envtl. Coal., Inc. v. Apogee Coal Co., 531 F. Supp. 2d 747, 754–55 (S.D. W. Va. 2008). Id.
278 Apogee Coal, 555 F. Supp. 2d at 645.
280 Id. at 341.
281 Id. at 342, 344. The consent order granted extensions for installing a system to protect marine life in the Hudson River. Id. at 341–42.
282 Id. at 345.
283 Id.
284 See Riverkeeper, 675 F. Supp. 2d at 346.
285 Id. at 334–34.
After citing the federal regulatory authority for modifying NPDES permits, the court noted that the proper steps for the modification of a permit were not followed.\textsuperscript{286} The \textit{Bucks County} court decided that the consent order could not modify the permit.\textsuperscript{287} The logic of the \textit{Bucks County} court’s analysis was adopted in \textit{Pennsylvania Public Interest Research Group v. P.H. Glatfelter Co.}\textsuperscript{289} The \textit{P.H. Glatfelter} court noted that if a permitting authority does not follow proper modification procedures before entering a consent agreement, the agreement does not alter the defendant’s permit obligations.\textsuperscript{290} Improper modification procedures mean that the resulting orders or permits are invalid.\textsuperscript{291}

Other support for finding modifications to permits invalid is offered by a district court decision in \textit{Sierra Club v. Cripple Creek \& Victor Gold Mining Co.}\textsuperscript{292} The court noted that a purported permit modification by agency letter, agency order, or stipulation without public opportunity to be heard was void as a matter of law.\textsuperscript{293} Whether the court finds an administrative action void, invalid, or failing to alter permit obligations, the effect is that the action does not modify the underlying permit.\textsuperscript{294} Support for not allowing permits to be modified without public input is the policy delineated in the CWA of encouraging public participation in the administration of the NPDES permit program.\textsuperscript{295} Agencies that disregard this policy expose permittees to citizen suits.

Drawing on the reasoning adopted by courts regarding permit modifications, it might be argued that any permit issued by a regulatory authority without an opportunity for public input should be ineffective

\textsuperscript{287} \textit{Id.} at *3–6 (citing 40 C.F.R. § 123.25(a) (1985)).
\textsuperscript{288} \textit{Id.} at *6.
\textsuperscript{290} \textit{Id.} at 759.
\textsuperscript{291} \textit{See id.} at 762.
\textsuperscript{292} Nos. 00-cv-02325-MSK-MEH, 01-cv-02307-MSK-MEH, 2006 U.S. Dist. LEXIS 27973, at *48–49 (D. Colo. Apr. 13, 2006) (citing a number of other cases in support of its argument).
\textsuperscript{293} \textit{Id.} at *48–49.
\textsuperscript{294} \textit{See P.H. Glatfelter}, 128 F. Supp. 2d at 762; \textit{In re Catskill Mountains Chapter of Trout Unlimited v. Sheehan}, No. 06–3601, 2008 N.Y. Misc. LEXIS 5923, at *18–19 (N.Y. Sup. Ct. Aug. 5, 2008) (vacating a determination about a state NPDES permit due to inadequate opportunity for public input, and ruling that the previously issued permit would remain in force for a reasonable time).
in authorizing discharges. Because the CWA places participation by the public as an integral component of the NPDES permitting scheme, failure to give notice to the public and allow participation might be interpreted to mean that the permitting authority cannot issue a valid permit.\textsuperscript{296} However, courts have not reached this result. Instead, lapses by permitting authorities not following public participation requirements are addressed by citizen suits against the agency.

**Conclusion**

Although Congress and state legislatures have enacted numerous laws to enhance environmental quality, many Americans continue to be adversely affected by air and water pollution. One problem is the lack of governmental response to violations of environmental laws. Governments are not able to diligently enforce environmental laws.\textsuperscript{297} Due to a number of reasons, including inadequate budgets, Congress anticipated this problem, and countered it by including citizen suit provisions in major environmental laws that allow citizens to take up the slack and bring suits to address violations. The inclusion of a citizen suit provision in an environmental statute demonstrates congressional intent to have the public help oversee environmental quality and regulatory compliance. In addition to citizen suit provisions, many statutes require opportunities for the public to be involved with administrative permitting and penalty actions.\textsuperscript{298}

When citizen participation is included in a statute, questions arise regarding what kinds of participation are required, what administrative actions must include opportunities for citizen input, when citizens can make input, and what kind of input may be made.\textsuperscript{299} In analyzing the congressional directives set forth in subsection 101(e) of the CWA, it is clear that Congress intended citizens to be able to participate in the “development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program” established under the Act.\textsuperscript{300}


\textsuperscript{297} Perhaps the greatest reason for not enforcing is economic; states are under pressure to slacken environmental requirements in order to keep jobs. See Will Reisinger, Trent A. Dougherty & Nolan Moser, Environmental Enforcement and the Limits of Cooperative Federalism: Will Courts Allow Citizen Suits to Pick Up the Slack?, 20 DUKE ENVT. L. & POL’Y F. 1, 19 (2010). The authors advocate for more vigorous enforcement as a solution. Id. at 61.


\textsuperscript{299} See supra Parts II–V.

\textsuperscript{300} 33 U.S.C. § 1251(e).
This means that under the CWA, citizens should be able to participate in the development of effluent limitations set forth in NPDES permits. Furthermore, if a permittee desires to modify a permit, the citizen participation provisions remain applicable. Any cease and desist order, consent order, compliance order, or other document that is intended to modify a permit should only be effective if the public receives notification and is provided an opportunity to participate. While these requirements for public participation may be cumbersome, participation fosters public involvement in facilitating the environmental objectives delineated by Congress in various statutes.

An analysis of judicial rulings on public participation offers two suggestions for regulators and permittees involved in the NPDES permitting process. First, permittees have an interest in helping their permitting authority follow legal directives on public participation. If a permitting authority issues permits without adequate opportunity for public input, the agency’s actions may be challenged and the validity of existing permits may become an issue. Permittees should want permitting authorities to follow the public participation requirements mandated by statutory and regulatory provisions to reduce the risk of being liable for unauthorized discharges.

Second, Congress and the courts have noted that an opportunity for public participation is an important aspect of the issuance of permits. These pronouncements suggest that citizen groups may become even more active in enforcing environmental standards. If a waterbody is polluted, an environmental group might evaluate the facts and proceedings to determine whether a citizen suit is possible. Groups can seek out the sources of pollutants, examine the effluent limitations authorized by the sources’ NPDES permits, and learn whether the public had access to documentation prior to the issuance of the permits. If the public did not have input in developing the effluent limitations set forth in a permit or revised permit, a citizen suit may be possible. If a permit-

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302 See supra Part V.B.
305 See Waterkeeper, 399 F.3d at 503 (stating that Congress “intended to guarantee the public a meaningful role in the implementation of the Clean Water Act”).
tee’s pollutant loadings or other significant parameters in the permit are not being followed, this may also form the basis of a citizen suit.

The statutory directives on citizen participation are demanding; any deviation from the requirements by a permittee or any noncompliance with statutory or regulatory directives by a permitting authority offers an argument that can be raised in a citizen suit. Efforts to attain environmental quality objectives show a progression of requirements, actions, and remedies. While Congress established basic controls in major environmental statutes decades ago, regulatory agencies and the public are still developing the framework and procedures to respond to pollution problems.\textsuperscript{306} Citizen participation has been instrumental in forging environmental controls that can effectively reduce pollution and contamination problems. Recent developments suggest that citizens can be even more active in championing environmental quality. Greater citizen participation in the permitting process can enhance the efforts of permitting authorities in reducing pollutant discharges.

Moreover, disasters such as the explosion of an oil rig in the Gulf of Mexico suggest that greater citizen involvement may be needed to spur businesses and governmental authorities to do more in reducing environmental risks associated with regulated activities.\textsuperscript{307} Canada’s Prime Minister claimed that the environmental and safety standards of the United States are weaker than those of Canada, citing a rule for drilling relief wells during the same drilling season as the initial well.\textsuperscript{308} Have governments been too lax in not updating safety requirements for offshore oil drilling?\textsuperscript{309} The oil spill is a reminder that governmental regulations are needed to reduce the risks of environmental disasters.\textsuperscript{310} Greater citizen involvement can help governments take actions that would reduce risks. Simultaneously, more vigilant oversight of drill-


\textsuperscript{307} The industry may be lagging in the development of technology to respond to disasters. See Steven Mufson, \textit{Today’s Spills, Yesterday’s Tools}, \textit{Wash. Post}, May 4, 2010, at A1.


ing permits may be needed to ascertain that existing offshore regulations are being followed.\textsuperscript{311}

THE BUTTERFLY EFFECT: CONSERVATION EASEMENTS, CLIMATE CHANGE, AND INVASIVE SPECIES

JAMES L. OLMSTED*

Abstract: This Article explains that one of the consequences of climate change will be migrations of species from their native habitats to newer habitats, typically to the north, with climates similar to those in which such species evolved. These in-migrating species will in many cases be invasive, forcing the native species to out-migrate or be driven to extinction, thereby causing biodiversity loss. As many of these disrupted ecosystems may be protected by perpetual conservation easements, the Article discusses the negative legal consequences of incursions by non-native species on these existing conservation easements. Accordingly, the Article suggests a number of changes that can be made to future conservation easements to help insure their protection of land in perpetuity and to better protect species and their habitats from the effects of climate-change-caused migrations.

Introduction: A Sound of Thunder

The 1952 science fiction short story A Sound of Thunder by author Ray Bradbury is one of the most republished science fiction stories of all time.1 In the story, set in the year 2055, a big game hunter named Eckels hires a time machine company to take him back in time to kill the biggest game of all, a Tyrannosaurus Rex.2 Once back in time, Eckels meets his intended prey.3 However, Eckels is so frightened that he breaks the cardinal rule of time travel: he steps off the elevated pathway

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3 Id. at 236.
designed to prevent time travelers from the future from contacting the soil or its plants and thereby changing history. After returning to 2055, Eckels notices that many things are different. Most notably, the liberal political regime that was in place when he left has been replaced by a fascist government. The cause of the changes is eventually discovered; on the sole of Eckels’ boot is a single crushed butterfly.

While many people are familiar with the story itself, many more people are familiar with the term “the butterfly effect.” In popular usage, the butterfly effect refers to the theory that a single small effect can multiply into an ever-increasing cascade of events, leading to a multitude of unpredictable consequences. Although it is tempting to think of the butterfly effect as similar to a row of dominoes in which each domino knocks down the next, the comparison is not apt. In the case of the dominoes it is easy to predict the order in which the dominoes will fall and what the ultimate outcome will be. The butterfly effect, on the other hand, is unpredictable by any human means. Indeed, the butterfly effect stands for the proposition that certain outcomes are so sensitive to their initial states that the resulting complexity defies human prediction. Embedded in this complexity is the operation of feedback loops, exponential increases and decreases in system components, and irreversible tipping points. In this sense, the butterfly effect is a powerful allegory of global climate change.

In *A Sound of Thunder*, the initial disturbance of history was the killing of a single butterfly. In our climate-changing world, the butterfly

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4 Id. at 233–34, 237.
5 Id. at 240–41.
6 See id. at 232, 241.
7 Id. at 240.
9 See Hilborn, *supra* note 8, at 425; Tapper, *supra* note 8 (explaining how an unintended single word from the President can affect something as large as the Mideast peace process).
10 See Hilborn, *supra* note 8, at 425.
11 See id.
12 Id.
13 See id.
15 See Bradbury, *supra* note 2, at 240.
is the emission of greenhouse gases\textsuperscript{16} that contribute to global warming and climate change.\textsuperscript{17} Indeed, almost every action we take results in more carbon dioxide being released into the atmosphere.\textsuperscript{18} Activities as simple as driving a car to the store to buy groceries, or even turning on a single light bulb, discharge more carbon into the atmosphere.\textsuperscript{19} What is worse, today it is not just one of us turning on the light bulb.\textsuperscript{20} Every day about 6.9 billion of us,\textsuperscript{21} in ways small and large, collectively discharge prodigious amounts of carbon and other greenhouse gases into the atmosphere.\textsuperscript{22} The net result is global climate change.\textsuperscript{23} If Eckels altered the course of millions of years of history by stepping on a single butterfly, what are we doing to planetary history by pumping ever more greenhouse gases into the atmosphere every second of every day? There is not one of us alive today who is not playing the role of Eckels.\textsuperscript{24} In our reckless search for wealth and convenience we have wiped out entire species of butterflies and of many other creatures as well.\textsuperscript{25}

\textsuperscript{16} There are a number of greenhouse gases (GHGs), each with its own sources, effects, and duration in the atmosphere. Henson, supra note 14, at 23–27. Included among the GHGs are: carbon dioxide (CO\textsubscript{2}), methane, ozone, water vapor, and the suite of chemicals collectively described as chlorofluorocarbons. Id. For purposes of this Article, carbon dioxide, simply referred to as carbon, serves as a proxy for all such GHGs. For a more in-depth explanation of the science of greenhouse gases, see, for example, id.; Andrew J. Waskey, Carbon Dioxide, in 1 Encyclopedia of Global Warming and Climate Change 163, 163–65 (S. George Philander ed., 2008).


\textsuperscript{19} See Henson, supra note 14, at 36–38; Stern, supra note 17, at 195–99; Bessendorf, supra note 18, at 329.

\textsuperscript{20} See Stern, supra note 17, at 196; Andrew Hund, Carbon Footprints, in 1 Encyclopedia of Global Warming and Climate Change, supra note 16, at 166, 166–67.


\textsuperscript{22} See Stern, supra note 17, at 202–03. It is estimated that human activities now produce approximately 27,500 million tons of CO\textsubscript{2} annually. Hund, supra note 20, at 166–67. While China became the number one emitter of CO\textsubscript{2} in 2006, the United States still surpasses China in emissions on a per capita basis, with each person emitting 42,500 pounds of CO\textsubscript{2} annually. Id.

\textsuperscript{23} See Henson, supra note 14, at 19–30; Bessendorf, supra note 18, at 326–28.

\textsuperscript{24} See Hund, supra note 20, at 167 (”[T]he average U.S. citizen is responsible for 42,500 pounds or 19,278 kilograms of CO\textsubscript{2} as a result of heating and electricity for living spaces, driving, traveling by airplane, and purchasing manufactured products.”).

including those we have not yet even seen. And, tragically, like Eckels, we cannot go back and fix things.

I. CLIMATE CHANGE AND INVASIVE SPECIES

A Sound of Thunder is not only a metaphor for extreme biological determinism and exponential increases in biological harm, it is also a metaphor for the devastating effect of invasive species. In Bradbury’s tale, it is Eckels, a single human from another time, who is the invasive species. Ironically, as we try to feed and house nearly 6.9 billion people with a projected increase to 9.1 billion by 2050, all of humanity has become an invasive species—and a very successful one at that. We no longer have any natural enemies; we are extraordinarily adaptable and able to thrive under almost any environmental conditions. Worse, we are able to develop technologies that magnify our already formidable capabilities by many orders of magnitude. Like Eckels’s single, unfortuitous boot print, our collective carbon footprint is bringing disastrous, cascading, and intensifying change to literally every part of our once Edenic planet.

27 See LYNAS, supra note 17, at 264–65 (discussing tipping points and our ability to limit the effects of global warming). See generally BRADBURY, supra note 2, at 240–41.
29 See BRADBURY, supra note 2, at 237; Tim M. Blackburn & Kevin J. Gaston, Biological Invasions and the Loss of Birds on Islands: Insights into the Idiosyncrasies of Extinction, in SPECIES INVASIONS: INSIGHTS INTO ECOLOGY, EVOLUTION, AND BIogeOGRAPHY 85, 87 (Dov F. Sax et al. eds., 2005) (noting that humans meet the definition of “exotic invader”). See generally Mooney, supra note 28, at 1–6 (describing what invasive species are and why they succeed).
31 STERN, supra note 17, at 209.
32 See Blackburn & Gaston, supra note 29, at 87.
34 Garry Peterson et al., Uncertainty, Climate Change, and Adaptive Management, ECOLOGY & SOC’y, Dec. 1997, http://www.ecologyandsociety.org/vol1/iss2/art4/ (“Unlike other species, humans have the ability to plan for the future and to invest in technology and learning to mitigate and adapt to future changes.”).
35 See id.
36 See supra text accompanying notes 17–27 (noting that our collective actions impact atmospheric carbon levels); infra Parts I.A–I.B (noting that rising levels of carbon may lead to rising sea levels and an increase in the introduction of invasive species to many ecosystems).
However, this Article is not about humanity as an invasive species. Instead, it is about how humanity has helped spread invasive species around the world and the consequences these invasions will have on native species. Accordingly, one purpose of this Article is to draw attention to the enormously important but surprisingly little known connections between global climate change, migrations of invasive species and extinctions of native species. Another purpose is to examine what negative effects these connections will have on land protected in perpetuity by conservation easements and what can be done to minimize or mitigate these effects.

A. Planet Carbon

This Article is not about global warming itself, but instead about one of the many catastrophes it will cause. Nevertheless, some explanation of the phenomenon is warranted. The concentration of carbon dioxide in the atmosphere rose markedly with the Industrial Revolution. Pre-industrial carbon dioxide levels are estimated at between 270

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37 See infra Part I.B (discussing the phenomenon of “climate surfing”). See generally Gorke, supra note 25, at 3 (noting the connection between climate change and species extinctions).

38 See infra Part IV.

and 280 parts per million.\textsuperscript{40} The current level of carbon dioxide is at approximately 385 parts per million.\textsuperscript{41} Some leading scientists have estimated that a concentration as low as 350 parts per million represents the maximum allowable level of carbon dioxide in the atmosphere to “maintain the climate to which humanity, wildlife, and the rest of the biosphere are adapted.”\textsuperscript{42}

Clearly, 385 parts per million is above this estimated target, and “is already in the dangerous zone.”\textsuperscript{43} This number has little meaning in isolation, but its consequences are staggering.\textsuperscript{44} The global scientific community has concluded that we may see sea levels rise up to two meters by 2100 as a result of climate change.\textsuperscript{45} This likely rise in sea levels results from various temperature-influenced phenomenon, from the melting of land ice (notably Greenland and the Antarctic) to the expansion of the water itself.\textsuperscript{46} This spells disaster for the millions of people who inhabit lands that are already mere meters above sea level.\textsuperscript{47} Such a concentration of greenhouse gases portends additional global-scale disasters, including increased severity of major weather events,\textsuperscript{48} mass human relocation, and attendant civil, social, and political strife.\textsuperscript{49} Of course, humanity will not be the only victim of global warming.\textsuperscript{50} Just as millions of people will engage in mass migrations in search of food, water, and shelter, almost all species will also face climate-change-induced migrations.\textsuperscript{51}

\textsuperscript{40} U. Siegenthaler & H. Oeschger, Biospheric CO$_2$ Emissions During the Past 200 Years Reconstructed by Deconvolution of Ice Core Data, \textit{39B Tellus B} 140, 140 (1987); Waskey, \textit{supra} note 16, at 165.
\textsuperscript{41} James Hansen et al., Target Atmospheric CO$_2$: Where Should Humanity Aim? \textit{2 Open Atmospheric Sci. J.} 217, 228 (2008); see also Waskey, \textit{supra} note 16, at 165 (noting that in 2008, the level of carbon dioxide was at “380 ppm and rising”).
\textsuperscript{42} Hansen, \textit{supra} note 41, at 218.
\textsuperscript{43} Id.
\textsuperscript{44} See IPCC SYNTHESIS, \textit{supra} note 39, at 66–67; S\textit{T}ER\textit{N}, \textit{supra} note 17, at xv–xvi; Waskey, \textit{supra} note 16, at 165 (“It is estimated that 450 ppm may be a kind of trigger for major weather changes that may be permanent . . . .”).
\textsuperscript{46} See Henson, \textit{supra} note 14, at 82–88; IPCC SYNTHESIS, \textit{supra} note 39, at 73; L\textit{Y}N\textit{A}S, \textit{supra} note 17, at 72–78; S\textit{T}ER\textit{N}, \textit{supra} note 17, at 152.
\textsuperscript{47} See L\textit{Y}N\textit{A}S, \textit{supra} note 17, at 52–53; S\textit{T}ER\textit{N}, \textit{supra} note 17, at 138–39.
\textsuperscript{48} See L\textit{Y}N\textit{A}S, \textit{supra} note 17, at 51.
\textsuperscript{49} See S\textit{T}ER\textit{N}, \textit{supra} note 17, at 138–39.
\textsuperscript{50} See GORKE, \textit{supra} note 25, at 3.
\textsuperscript{51} See id.
B. Climate Surfing Species

Most people are familiar with the curvy lines of topographic maps. By linking areas of similar elevations with these lines it is possible to make out land features such as mountains, canyons, and valleys.52 We can use topographic maps for a number of purposes, including navigation in unfamiliar territory.53 There is another type of map with a similar appearance—an isotherm map. However, the lines on an isotherm map represent areas of similar average temperatures.54 Thus, where the gradient of a topographic map represents the difference in elevation between two points, the gradient of an isotherm map represents the difference in average temperature between two points.55

Isotherm maps become important when one understands that one of the effects of global climate change will be the wholesale migrations of entire species—and indeed entire biomes—as increases in average temperatures in their native climes send them northward, in search of climates similar to those in which they evolved.56 Such “climate surfing” across isotherm lines will determine the survival, or extinction, of the climate surfing species as they arrive at stopping points along the way that may or may not be habitable.57 Of greater interest for this Article, however, is that such climate surfing will mean life or death for the native species in those stopping places where successful climate surfing species have the potential to become invasive species.58

C. Invasive Species: Plants, Pigs, Perch, and Parakeets

While climate surfing species that invade new habitats are the main subject matter of this Article, it is worth examining other past and

53 See id.
55 See Isotherms Mini Unit, supra note 54.
57 See id.
58 See infra Part III. Not only will global warming stimulate migratory behavior in species, it will also further drive the colonization of newly encountered habitat by disrupting native ecosystems, e.g., by creating severe weather events that remove vegetation and create bare soil—conditions that make colonization for non-native species more likely. Gian-Reto Walther et al., Alien Species in a Warmer World: Risks and Opportunities, 24 TRENDS IN ECOLOGY AND EVOLUTION, 686, 686–88 (2009).
present incursions. Such incursions can be coarsely divided between deliberate human introduction of non-native species, and introductions where non-native species have managed to colonize new lands on their own, or with the unwitting help of humans.\textsuperscript{59} A further distinction is made between incursions by non-native species that do little or no harm to their new ecosystems, and incursions where the non-native species create havoc in their new ecosystems.\textsuperscript{60} Following standard nomenclature, such harmful species are referred to in this Article as invasive species.\textsuperscript{61} Invasive species are particularly important to this Article as they are contributing to the current enormous extinctions rates we are creating on the planet.

1. Plant Invasive Species

History abounds with examples of deliberate introductions of non-native plant species.\textsuperscript{62} For as long as humans have been scuttling back and forth over continents and across oceans, they have carried with them and deposited on foreign soil a remarkable number of plants.\textsuperscript{63} For example, evidence exists that plants were traded and then introduced into new areas as early as the fourth century before the Common Era by use of the Shu-Yuan Du trade route linking India and China.\textsuperscript{64} Other evidence suggests that plants have been moved and cultivated since 8000 years before the Common Era.\textsuperscript{65}


\textsuperscript{60} See Harold A. Mooney & Richard J. Hobbs, \textit{Global Change and Invasive Species: Where Do We Go From Here?}, in \textit{Invasive Species in a Changing World}, supra note 59, at 425, 429–30 (describing the difference between the non-native species that supply the bulk of our food, which are largely non-invasive, and non-native invasive species).


\textsuperscript{63} See id. at 22.

\textsuperscript{64} Id.

\textsuperscript{65} Id. at 21.
Given its colonial origins, it should not be surprising that the United States harbors huge numbers of non-native species. Looking just at plants, the United States is “home” to at least 5000 introduced plant species, compared with 17,000 native plants. About “[h]alf of the wild poisonous plants in North America are introduced, as are half the earthworms in the soil.” Over the years plants have been relocated to the United States for a number of reasons, including ornamental, medicinal, and agricultural purposes. In fact, many non-native plant species have been so successful in their new environments and have co-existed with humans for so long that they are considered native by all but those who have scientific knowledge of their true origins. Such “adoptions” can occur whether the species was introduced deliberately or accidentally. This phenomenon occurs with other, non-plant species as well.

2. Animal Invasive Species

As is the case with plants, deliberate introductions of animal species abound. One deliberately introduced species that has flourished for so long that it is now considered indigenous is Hawaii’s feral pig. While the feral pig has many detractors, it has also attracted a vocal group of supporters, namely those who hunt the pigs for food and sport. Just as the feral pig was introduced to Hawaii by Polynesians as

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66 See id. at 22 (explaining that the first European settlers brought non-native species in the form of “crops, medicinals, herbs, and domesticated animals they felt were necessary for their immediate survival in an unknown, hostile environment”).


68 Id.

69 See Lockwood et al., supra note 62, at 22, 24.

70 See, e.g., Vic Ramey, Non-Native Invasive Plants: An Introduction, Center for Aquatic & Invasive Plants, U. of Fl. (2005), http://plants.ifas.ufl.edu/guide/invplant.html (describing which plants in Florida are native and which are not, citing the water fern as being “so common now that most people think that it’s a native”).

71 See Lockwood et al., supra note 62, at 21–29 (explaining both the direct and indirect ways invasive species can arrive, and how common they can become, pointing to examples such as St. John’s Wort and kudzu).

72 See, e.g., Peter Coates, American Perceptions of Immigrant and Invasive Species: Strangers on the Land 7 (2006) (describing the English sparrow and the starling as examples of non-native species that have been in the United States so long that they are “naturalized”).

73 See Lockwood et al., supra note 62, at 22 (documenting the introduction of non-native animal species for food and game).

74 See Burdick, supra note 67, at 114.

75 Id.
a docile, domesticated animal, domesticated animals have accompanied humans on many major human migrations. No doubt many of these domesticated animals escaped and, if they survived in sufficient numbers to maintain viable populations, became feral. Given the variety and duration of human relationships with various animal species, it is not surprising that there would be many instances of accidental and deliberate introductions. Human interactions with animals include the use of animals as beasts of burden for carrying people and their possessions, as machines to pull plows and to assist in other agricultural endeavors, as game species to be hunted, as pest control, as pets, and as food.

3. Aquatic Invasive Species

Introductions of aquatic species likewise abound. Among the examples of introduced non-native aquatic species that have become invasive are: the Nile Perch (since its introduction into England’s Lake

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76 See id.
77 See LOCKWOOD ET AL., supra note 62, at 24–27 (explaining that animals were brought to new habitats as pets and as livestock).
80 For an amusing and shocking documentary of a deliberate introduction of a non-native species gone terribly wrong, see the movie “Cane Toad,” written and directed by Mark Lewis in 1988. CANE TOAD (First Run Features 1988). Cane toads, which are native to the southern United States, Central America, and South America, were deliberately introduced in Australia in 1935 to control outbreaks of cane beetles. CANE TOAD, NAT’L GEOGRAPHIC, http://animals.nationalgeographic.com/animals/amphibians/cane-toad/ (last visited Dec. 22, 2010). The cane toads failed to control the cane beetles but became extremely successful at propagating themselves. Id. Starting with an initial introduction of 3000 toads, they now number in the millions and they continue to expand their range, despite sustained efforts to eradicate them. Id. Cane toads are quite large, sometimes weighing up to four pounds. MARK CARWARDINE, ANIMAL RECORDS 182 (2008) (noting that the largest toad ever recorded was a five pound cane toad). Among their other unpleasant qualities, they contain a natural poison in their bodies which they also exude from their skin. CANE TOAD, NAT’L GEOGRAPHIC, http://animals.nationalgeographic.com/animals/amphibians/cane-toad/ (last visited Dec. 22, 2010). Native species that attempt to eat cane toads often die from ingestion of the poison. Id.
81 See LOCKWOOD ET AL., supra note 62, at 22–28; Jennifer Kendall, AMERICAN LIVESTOCK BREEDS FROM COLONIAL TIMES, GRIT (May/June 2010), http://www.grit.com/livestock/american-livestock-breeds-from-colonial-times.aspx (noting that the Pilgrims brought animals with them to America to use for food, clothing, and labor).
Victoria it has decimated at least 200 native cichlids);\textsuperscript{83} the sea lamprey (introduced into the upper Great Lakes in 1829, by 1946 it had colonized all the Great Lakes and had begun edging out native trout populations);\textsuperscript{84} and the champion of fresh water invaders, the zebra mussel. Not only is the zebra mussel incredibly prolific and competitive with native species, it also has an impressive ability to clog up, befoul, and encrust almost any human machinery in its new territories.\textsuperscript{85} Indeed, the number of introductions of non-native aquatic species is so great as to be uncountable.\textsuperscript{86} A major, reckless cause of the accidental introduction of non-native, aquatic species is the use of seawater for ballast to stabilize oceangoing vessels.\textsuperscript{87} Remarkably, this process has been ongoing since the 1840s,\textsuperscript{88} and modern ships have evolved to the point that they can carry ballast water in the tens of millions of gallons.\textsuperscript{89} In the typical scenario, ships take on ballast water in one harbor and then pump the ballast water in the destination harbor where it is no longer needed for ballast.\textsuperscript{90} Ballast water is now known to carry a very large number of species, many of which become successful in their new habitats.\textsuperscript{91} Unfortunately, the study of introduced aquatic species is severely handicapped because non-native introductions began long before the phenomenon of invasive aquatic species became a subject of scientific study.\textsuperscript{92} As a consequence, scientists have no baseline against which introductions can be measured.\textsuperscript{93} Indeed, this fact challenges the notion of “naturalness” because scientists have no way of differentiating between original, natural species distributions and those that were long

\textsuperscript{83} Lockwood et al., supra note 62, at 195.
\textsuperscript{84} Kolar & Lodge, supra note 59, at 8.
\textsuperscript{85} Burdick, supra note 67, at 224–25.
\textsuperscript{86} Aquatic Biodiversity: Exotic Species, supra note 82 (emphasizing the number of non-native aquatic species in the United States, “[i]t has been reported that ship ballast water is responsible for the transport of approximately 3000 species worldwide each day”).
\textsuperscript{87} Lockwood et al., supra note 62, at 28–29, 61–62.
\textsuperscript{88} James T. Carlton, Global Change and Biological Invasions in the Oceans, in INVASIVE SPECIES IN A CHANGING WORLD, supra note 59, at 31, 36.
\textsuperscript{89} Kolar & Lodge, supra note 59, at 23.
\textsuperscript{91} See Carlton, supra note 88, at 36.
\textsuperscript{92} See Burdick, supra note 67, at 219 (“[T]he modern study of marine biological invasion began . . . in 1962 . . . .”); Carlton, supra note 88, at 36 (noting that ship ballast introductions have been ongoing since the 1840s).
\textsuperscript{93} See Burdick, supra note 67, at 242 (noting that because much of ecological history has been “washed over,” it is difficult for scientists to understand the events leading to the formation of marine ecological communities).
ago invaded by species which have not only survived but have created their own ecosystems.\textsuperscript{94}

4. Avian Invasive Species

Equally as notorious as plant, animal, and aquatic introductions are the many deliberate avian introductions.\textsuperscript{95} Among the reasons for such introductions include as prey for hunting, as a food source, and as pest control.\textsuperscript{96} Perhaps more than other taxa, birds have been introduced for aesthetic purposes, including not only their physical appearance but for their song as well.\textsuperscript{97} As humans have themselves invaded new lands, they have brought with them, or later acquired, various bird species from their former homes to make their new homes more familiar and perhaps less threatening.\textsuperscript{98} In addition to deliberate introductions of birds into the wild, many birds have been domesticated as pets, some of which have escaped into the wild where they have become invasive species, parakeets for example.\textsuperscript{99} Some introduced avian species have even been so successful in adapting to their new environments that they are now considered native. Two classic examples of such successful adaptations are the English sparrow and the Starling.\textsuperscript{100}

\textsuperscript{94} See id. The phenomenon of lost ecological history in the context of invasive aquatic species is poetically described in this quotation: “Unanchored by a definitive past, a marine scientist floats in the eternal present, like a sentence on the printed page. You can read the finished line, but you can never glimpse the crafting hand—its insertions, erasures, second thoughts—that honed it finally to a single word: \textit{cryptogenic}.” Id.

\textsuperscript{95} See, e.g., Coates, supra note 72, at 6 (2006); E.A. Zimmerman, \textit{House Sparrow History}, Sialis, http://www.sialis.org/hosphistory.htm (last updated Mar. 12, 2010).

\textsuperscript{96} See Coates, supra note 72, at 35.


\textsuperscript{98} See Coates, supra note 72, at 35.


\textsuperscript{100} See id. at 6–7. The introduction of the European starling to the United States was, depending upon one’s tastes, a charming result or the product of a paucity of understanding the workings of nature. See id. The best telling of this story is quoted below.

European starlings were introduced to America by a New Yorker, Eugene Schieffelin, in Central Park in 1890. Schieffelin was the chairman of the American Acclimatization Society, a group of scientists and naturalists that sought to introduce animal species to North America. In 1864, they released English sparrows in Central Park and also introduced, or attempted to introduce, Japanese finches, Java sparrows, English blackbirds, and the English titmouse, among many others. They corresponded with other acclimatization societies, such as the Cincinnati society, which successfully introduced the skylark in Ohio. The society was also interested in introducing American fish to
II. LAND TRUSTS AND CONSERVATION EASEMENTS

A. Land Trusts

There are a number of ways in which land is protected from development and thereby maintained in as natural a state as possible.\(^{101}\) Local, state, and federal parks, nature reserves, and even military bases are familiar examples of such protection.\(^ {102}\) Land can also be protected by fee title ownership where the landowner seeks to keep the land in its natural state. However, this Article focuses on the recent and increasingly widespread protection of land by land trusts through the use of perpetual conservation easements.

Land trusts represent a remarkable phenomenon in the history of environmental protection in the United States. With few exceptions, land trusts are 501(c)(3) charitable corporations that preserve land using market forces.\(^ {103}\) For example, land trusts sometimes purchase land in fee title from a landowner.\(^ {104}\) Alternatively, land is sometimes donated in fee title to land trusts by the landowner in return for a federal income tax deduction.\(^ {105}\) When land is transferred in fee title, it is often retained by the purchasing land trust and protected by ongoing stewardship of the natural character of the land and by prohibitions on any form of development on the land.\(^ {106}\) Another means for land trusts to protect property using market forces is to acquire conservation easements on property.

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European rivers. Introducing starlings in Central Park was only a part of Schieffelin’s plan to introduce to North America all of the birds mentioned in the works of Shakespeare.


102 Id.


104 See id. at 142.

105 See id. at 141; Elizabeth Byers & Karin Marchetti Ponte, The Conservation Easement Handbook 80 (2d ed. 2005).

106 See Brewer, supra note 103, at 5.
B. Conservation Easements

A conservation easement grants a land trust the right to prevent certain uses on land that someone else owns, generally to prevent development.\footnote{See Jean Hocker Foreword to Protecting the Land: Conservation Easements Past, Present, and Future, at xvii, 373 (Julie Ann Gustanski & Roderick H. Squires eds., 2000).} Conservation easements thus allow the land trust to monitor and provide stewardship to the property while allowing the landowner to remain on the property as the owner.\footnote{See Brewer, supra note 103, at 5.}

Conservation easement transactions are more complex than fee title acquisitions.\footnote{See generally William T. Hutton, Conservation Easements in the Ninth Federal Circuit, in Protecting the Land: Conservation Easements Past, Present, and Future, supra note 107, at 354, 373 (noting that conservation easements are complex mechanisms).} Conservation easement transactions often involve both state and federal law, as almost all states have state enabling statutes that govern conservation easement transactions,\footnote{See Byers & Ponte, supra note 105, at 86–87; Todd D. Mayo, A Holistic Examination of the Law of Conservation Easements, in Protecting the Land: Conservation Easements Past, Present, and Future, supra note 107, at 26, 27–31.} and often landowners are motivated by federal tax incentives that are specified in federal law and regulations.\footnote{See Byers & Ponte, supra note 105, at 23.} In a conservation easement transaction, a landowner donates or sells a conservation easement to a qualifying land trust and the easement, at minimum, protects the easement land from any form of development.\footnote{See Brewer, supra note 103, at 146.} Many conservation easements carry such protection of the land a step further and provide for restoration and remediation of natural features of the land.\footnote{See Byers & Ponte, supra note 105, at 224–25.}

Like other forms of easements, conservation easements are recorded in the chain of title of the easement property and run with the land, thus binding all future landowners to the agreements reached in the conservation easement.\footnote{See id. at 21.} However, unlike other forms of easements, the holder of the conservation easement holds it independent of any other landownership, so the easement is not tied to an adjacent, dominant parcel,\footnote{See Hocker, supra note 107, at xvii.} which allows the conservation easement to benefit the public at large rather than a particular parcel of land.\footnote{See id.} This type of easement ownership is described in legal terms as “in gross,” and it
allows ownership of the easement to be transferred to other qualifying entities, such as a governmental entity.117

Perhaps the most remarkable attribute of conservation easements is that they are generally expected to be perpetual.118 Perpetuity, literally meaning “forever,”119 is partially the result of application of federal law creating tax incentives for donated conservation easements.120 Such laws require that conservation easements contain language expressly making them perpetual in duration.121 Additionally, most state enabling statutes have default rules favoring perpetuity and four states expressly require conservation easements to be perpetual.122 The expectation of perpetuity leads to conservation easements that will be in place for a very long time, which can be expected to leave a legacy of environmental protection and preservation unmatched by other state and federal environmental laws in the United States.

III. VIGNETTES OF NATURE AND LANDSCAPES OF EXTINCTION

A. Vignettes of Nature

The preservation of natural lands and open spaces in perpetuity is a worthy ambition. When we help to preserve land, and its species, in perpetuity we can feel that we have conferred an ecological benefit to the planet that will long outlive us, a sort of “vignette of nature” that will remain static and immutable literally forever.123 This aspiration is mirrored in the legal underpinnings of federal tax law governing donated conservation easements.124 One of the most critical requirements for the donor of a perpetual conservation easement to be eligible for a tax deduction is that the donor prepares a baseline environmental report that is in effect a snapshot of the condition of the easement property and its biome at the time of the donation.125 The baseline report is then used as a form of ecological yardstick to measure the landowner’s

117 See Byers & Ponte, supra note 105, at 173–74 (noting that a conservation easement may be transferred).
118 See id. at 21.
120 See Mayo, supra note 110, at 42.
121 See id.
122 See id. at 40–42.
123 See Brewer, supra note 103, at 160.
124 See Byers & Ponte, supra note 105, at 83 (citing I.R.C. § 170(h) (2006)).
compliance, or lack thereof, with the protective terms of the conservation easement, presumably in perpetuity.126 Thus, use of conservation easements for land protection is based on the assumption that species populations and ecosystems are static unless disturbed directly by human action.127 As noted earlier, this assumption, pleasing as it might be, is turning out to be fictitious as it becomes ever more apparent that using perpetual conservation easements designed to protect static “vignettes” of nature is at odds with the true character of nature as ever changing, non-cyclical, and stochastic. This disconnect is particularly acute as anthropogenically caused global climate change rearranges nature on every level, from the smallest micro fauna and micro flora to entire continents such as Greenland.128

B. Landscapes of Extinction

As noted earlier, the scenarios addressed in this Article are being played out against a background of planetary extinctions. The vast majority of scientists agree that these elevated background extinction rates are caused by humans and are far above the normal background rates that existed before human habitation.129 Indeed, many scientists warn that humanity has set in motion irrevocable changes that will lead to the sixth-greatest extinction in the history of the planet.130 This extinc-

126 See Byers & Ponte, supra note 105, at 100, 120–21.
128 See Olmsted, supra note 125, at 836 (implying that the value of baseline documentation may be undermined by the “abrupt and profound changes to virtually all of [the world’s] major natural systems as a result of human-caused climate change”); supra Part I.A (discussing the negative effects of man-made climate change on species of all taxa).
129 See F. Stuart Chapin III et al., Consequences of Changing Biodiversity, Nature, May 11, 2000, at 234, 234 (“Human alteration of the global environment has triggered the sixth major extinction event in the history of life . . . .”); Jason F. Shogren & Patricia H. Hayward, Biological Effectiveness and Economic Impacts of the Endangered Species Act, 32 Land & Water L. Rev. 531, 534 (1997) (“Most scientists agree, however, that today’s extinction rates go far beyond ‘background’ levels.”).
130 See Terry Glavin, The Sixth Extinction: Journey Among the Lost and Left Behind 35 (2006); Martin Gorke, The Death of Our Planet’s Species 2–4 (2003); David Quammen, supra note 78, at 606–08(1996); see also Edward O. Wilson, Biophilia 121–22(1984) (“Extinction is accelerating and could reach ruinous proportions during the next twenty years.”); Chapin et al., supra note 129, at 234 (“Human alteration of the global environment has triggered the sixth major extinction event in the history of life and caused widespread changes in the global distribution of organisms.”). Ironically, the year 2010 was designated by the United Nations as the “International Year of Biodiversity.” See Welcome, United Nations Int’l Year of Biodiversity, http://www.cbd.int/2010/welcome (last visited Dec. 22, 2010).
tion will affect all of Earth’s creatures. Thus, not only will we lose the charismatic mega-fauna—the lions and tigers and bears—but also plant species, aquatic species, insect species, avian species, and even the cryptic micro flora and micro fauna that support all of the complex food chains on earth. Worse yet, extinctions not only switch the lights off for individual species, extinctions are the leading cause of biodiversity loss on the planet. As biodiversity is itself a requirement for species survival, the loss of biodiversity contributes to exponential increases in extinction rates.

It is well established that humanity’s most devastating contribution to the current mass extinction is destruction and appropriation of natural habitat. It is equally well established that the second greatest cause of extinctions, also mediated by humanity, is the introduction of invasive species into formerly pristine ecosystems. As has been discussed, humanity introduces non-native species in a variety of ways, some deliberate and some not. Of primary importance for this Article is the human caused introduction of non-native species through the operation of anthropogenic climate change that will cause almost every category of organism on the planet to migrate to cooler temperatures and, in so doing, to invade new territories, many of which will be on lands presumably protected in perpetuity by conservation easements.

As most conservation easements make protection of native species and ecosystems a core conservation value, species invasions are a threat to continued implementation of many conservation easements. The creation of a conservation easement typically requires enormous investments of effort, time, and money. Thus, the potential failure of conservation easements due to migrating species invading new habitats

131 See Chapin et al., supra note 129, at 234–35 (noting that human activities have already led to the extinction of species in many groups, including mammals, fish, birds, and plants).

132 See John Charles Kunich, Losing Nemo: The Mass Extinction Now Threatening the World’s Ocean Hotspots, 30 COLUM. J. ENVTL. L. 1, 3 (2005); The Food Web, WATER ON THE WEB, http://www.waterontheweb.org/under/lakeecology/11_foodweb.html (last updated Mar. 3, 2004) (explaining that microorganisms, such as phytoplankton, form the base of the food pyramid and support all other trophic levels of the food chain).

133 See E.O. Wilson, THE FUTURE OF LIFE 98–99, 102 (2002); see also Robert W. Sutherst, Climate Change and Invasive Species: A Conceptual Framework, in INVASIVE SPECIES IN A CHANGING WORLD, supra note 59, at 211, 232 (“Invasive species are now recognized as being responsible for significant losses of biodiversity, and global [climate] change is likely to accelerate those losses by increasing disturbance and stressing native species at the margins of the distributions of native species.”).

134 See Sutherst, supra note 133, at 211, 232.

135 See id.

136 See Brewer, supra note 103, at 135–36.
can represent huge costs in terms of social resources that will be sorely needed for other preservation efforts.\textsuperscript{137}

\textbf{IV. DRAFTING CONSERVATION EASEMENTS IN THE AGE OF GLOBAL WARMING}

Conservation easement drafting is complicated even for experienced lawyers. Conservation easements are not user friendly and conservation easement drafting is not for amateurs.\textsuperscript{138} This is particularly true for perpetual conservation easements that are donated for purposes of achieving a tax deduction on federal income taxes.\textsuperscript{139}

There are a number of reasons for the difficulty in conservation easement drafting.\textsuperscript{140} One is that every conservation easement is different because, like contracts, they involve different parties and different issues.\textsuperscript{141} There is no “one-size-fits-all” in conservation easement drafting.\textsuperscript{142} Another reason for the difficulty is that conservation easements are driven by formalities to the extent that they represent deeds of interests in land which must meet the requirements for recordation in the chain of title.\textsuperscript{143} However, the most challenging aspect of drafting conservation easements is avoiding the loss of perpetuity.\textsuperscript{144}

Perpetuity is initially established in both donated and purchased conservation easements by express declarations that the easement is perpetual.\textsuperscript{145} A perpetual easement runs with the burdened land from landowner to landowner, and can be assigned by one grantee to another qualified grantee.\textsuperscript{146} Perpetuity must also be tied to the conservation purposes that the easement was drafted to protect.\textsuperscript{147}

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\textsuperscript{137} See generally id.
\textsuperscript{138} See Byers & Ponte, supra note 105, at 284–85 (discussing the “immense variation in circumstances” that easement drafters must address).
\textsuperscript{139} See id. at 296 (“Drafting easements to meet the requirements of particular federal or state tax incentives takes extra care.”).
\textsuperscript{140} See id. at 287, 290–91.
\textsuperscript{141} See id. at 287 (noting that one of the difficulties of conservation easements is that they must be tailored to the facts of each plot of land and the goals of each grantor and holder).
\textsuperscript{142} See generally id. at 21, 290–91.
\textsuperscript{143} See Greene, supra note 127, at 901–07 (discussing the “fundamental paradox” posed by the competing desires to draft specific easements to maximize protection of the land’s current condition and to draft flexible easements to facilitate endurance in the face of changing conditions).
\textsuperscript{144} See id. at 291.
\textsuperscript{145} See id. at 17–19, 21.
\textsuperscript{146} See id. at 83–84 (noting that a conservation easement must meet the “conservation purposes test” by being granted in perpetuity for a specific conservation purpose).
\end{flushleft}
purposes almost always include the general purposes enumerated in the state enabling act and, for donated easements, the general purposes in the federal tax law.\textsuperscript{148} Perpetuity is lost, or perhaps never achieved, by the failure to include the formulaic language in the statutes such as that just described.\textsuperscript{149} But perpetuity can be lost in other more subtle ways.\textsuperscript{150} For example, an amendment provision that is unlimited in scope will almost always be held to destroy perpetuity.\textsuperscript{151} This is because an unlimited amendment provision would allow the parties to contract out of preservation of certain conservation purposes or to otherwise limit the easement’s protection of the conservation purposes.\textsuperscript{152} Using amendment language as an example, it is now standard practice in the land trust community to limit amendments to only those that are neutral to or enhancing of the conservation purposes.\textsuperscript{153}

One of the most complicated aspects of drafting perpetual conservation easements in the age of global warming is the tension between the need for flexible amendments to address potential future global warming scenarios,\textsuperscript{154} and amendment provisions that are so open-ended they can cause the termination of an easement by loss of perpetuity.

\textsuperscript{148} See id. at 86 (noting that, while the IRS and state law often differ regarding what is a valid conservation purpose, easement donations must meet both requirements to assure validity and deductibility).

\textsuperscript{149} See id. at 17–21 (discussing the importance of incorporating “precise and clear language” of conveyed rights and conservation purposes to ensure that the conservation purposes can be achieved); see also Mayo, supra note 110, at 45 (noting that when conservation purposes can no longer be achieved, a once “perpetual” easement may be terminated).


\textsuperscript{151} See Byers & Ponte, supra note 105, at 71–75 (discussing the importance of drafting easements with specifically defined scope, so as to ensure that conservation purposes can be met and the easement can be enforced); McLaughlin, supra note 150, at 1072–73 (noting that amendments that do not protect the original conservation purposes destroy perpetuity).

\textsuperscript{152} See McLaughlin, supra note 150, at 1072–73.

\textsuperscript{153} See id. at 1072–75, 1090.

\textsuperscript{154} See Greene, supra note 127, at 884 (noting that characterizing a model of nature as “static and unchanging” is inaccurate, and that allowing more flexibility in drafting easements would better accommodate the fact that systems constantly change).
Consequently, it is critically important to be aware of this tension and to draft perpetual easements accordingly.\footnote{McLaughlin, supra note 150, at 1072–73 (discussing limitations to amending easements); see also Greene, supra note 127, at 901 (“Land trusts that use perpetual conservation easements face a fundamental paradox of land conservation: how to truly preserve land in perpetuity in the face of perpetual change.”).} 

A. A Relatively Natural Habitat: The Difficulty of Maintaining Conservation Easements Under Treasury Regulations

Perpetuity is more challenging to maintain for donated conservation easements for which the donor will seek an income tax deduction than it is for a purchased conservation easement.\footnote{See Byers & Ponte, supra note 105, at 183 (noting that it is necessary to draft easements to account for the possibility of changed conditions).} This is because the relevant federal tax law contains numerous technical requirements that must be met to achieve perpetuity in contrast with the far less complicated requirements of state easement-enabling statutes. Because the tax deduction for donated conservation easements has become a huge incentive for easement donations, it is critical to understand the perpetuity requirements under federal tax law.\footnote{One should always be aware of the operative law governing any given conservation easement. See id. at 85–87. Thus, perpetual conservation easements donated as tax deductible charitable gifts are governed by federal tax law and state law (including the relevant state easement-enabling statute and the state laws governing the administration of charitable gifts). See id. at 83, 86–87. Conservation easements that are purchased by (as opposed to donated to) governmental entities and land trusts need not satisfy federal tax law requirements and can be drafted to give the holder broad amendment and termination discretion, provided such discretion is consistent with the requirements of the state easement-enabling statute. See McLaughlin, supra note 150, at 1088–89 (discussing how easements that are purchased with unrestricted funds enjoy broad modification and termination capabilities, which would be contrary to the intent of the easement). Despite the fact that a purchased conservation easement meeting state statutory requirements but not federal tax law requirements could operate exactly as planned and do so in perpetuity, drafters often draft such purchased easements to comply with both state enabling act law and federal tax law. See Janet Diehl & Thomas S. Barrett, The Conservation Easement Handbook: Managing Land Conservation and Historic Preservation Easement Programs 12, 23 (1988) (noting that the IRS regulations serve as a useful model for conservation easement drafters, even if those easements are purchased rather than donated and thus “do not have to comply with IRS regulations,” because they delineate a framework of workable easement criteria). As was noted on the University of Indiana Land Trust Listserv recently, “most land trusts view IRC requirements as establishing sort of a ‘best practices’ standard and require their easements to meet that standard even if there is no intention on anyone’s part to achieve a charitable contribution deduction.” Posting of George M. Covington, gcovington@SBCGLOBAL.NET, to landtrust-L@Listserv.indiana.edu (Apr. 5, 2010) (on file with the author).}
The foundational federal tax law governing conservation easements is found at 26 U.S.C. § 170(h). This statute enumerates three factors which must be present to achieve a federal tax deduction for a donated, perpetual conservation easement: (1) the donation must be a qualified real property interest; (2) it must be to a qualified organization; and (3) it must be exclusively for a “conservation purpose.” As discussed below, it is the conservation purpose requirement that is most at risk in conservation easements that are subject to out-migrations and invasive species. The legal consequence of the failure to protect the conservation purpose, or purposes, is the loss of perpetuity and, thereby, the loss of any favorable tax treatment from the easement donation, and, perhaps, the extinguishment of the easement itself under state enabling law.

Section 170(h) sets forth four conservation purposes, any one of which may form the basis for a federal income tax deduction. The first purpose is “the preservation of land areas for outdoor recreation by, or the education of, the general public.” The second purpose is “the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosystem.” The third purpose is “the preservation of open space.” The fourth purpose is “the preservation of an historically important land area or a certified historic structure.” Because of the increasing rate of species extinctions and ecosystem changes that climate change will produce, drafters of donated conservation easements should be most concerned with the second purpose, “the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosys-

159 See Byers & Ponte, supra note 105, at 83.
160 See id. Following standard conservation easement nomenclature, the “conservation purposes” are to protect individual and specific “conservation values.” See id. at 85.
161 See infra Part IV.B.
162 See McLaughlin, supra note 150, at 1072–73.
163 See Byers & Ponte, supra note 105, at 86 (noting that an easement must meet both federal and state laws to be valid); Mayo, supra note 110, at 45 (noting that state law provides for the termination of easements that no longer can meet their original conservation purposes).
165 Id. § 170(h) (4) (A) (i).
166 Id. § 170(h) (4) (A) (ii).
167 Id. § 170(h) (4) (A) (iii).
168 Id. § 170(h) (4) (A) (iv).
However, a conservation easement can purport to further one or more of the enumerated purposes.\(^{169}\)

Section 170(h) is explained and interpreted by regulations promulgated by the United States Treasury at section 1.170A-14.\(^{170}\) Of these regulations, 1.170A-14(d)(3)(i) and (ii) address the protection of natural assets.\(^{172}\) Because these regulations are awkwardly drafted and can generate confusion, they are set out in full below.

\((i)\) In general. The donation of a qualified real property interest to protect a significant relatively natural habitat in which a fish, wildlife, or plant community, or similar ecosystem normally lives will meet the conservation purposes test of this section. The fact that the habitat or environment has been altered to some extent by human activity will not result in a deduction being denied under this section if the fish, wildlife, or plants continue to exist there in a relatively natural state. For example, the preservation of a lake formed by a man-made dam or a salt pond formed by a man-made dike would meet the conservation purposes test if the lake or pond were a nature feeding area for a wildlife community that included rare, endangered, or threatened native species.

\((ii)\) Significant habitat or ecosystem. Significant habitats and ecosystems include, but are not limited to, habitats for rare, endangered, or threatened species of animal, fish, or plants; natural areas that represent high quality examples of a terrestrial community or aquatic community, such as islands that are undeveloped or not intensely developed where the coastal ecosystem is relatively intact; and natural areas which are included in, or which contribute to, the ecological viability of a

\(^{169}\) See id. § 170(h)(4)(A)(ii); see also Anna T. Moritz et al., Biodiversity Baking and Boiling: Endangered Species Act Turning Down the Heat, 44 TULSA L. REV. 205, 205 (2008) (discussing global warming’s effect on rate of species extinction).

\(^{170}\) Of the four conservation purposes discussed in this Article, climate change will most heavily impact the protection of “relatively natural habitat[s] of fish, wildlife, or plants, or similar ecosystem[s].” See 26 U.S.C. § 170(h)(4)(A)(ii). Consequently, many conservation easement drafters “hedge their bets” of achieving perpetuity by also stating in their conservation easements that they protect lands for other purposes, such as recreation, education for the general public, and for open space. See Byers & Ponte, supra note 105, at 390–91 (noting that easements may serve multiple conservation purposes). Protection of habitat is the focus of this Article because, of all the conservation purposes, protection of habitat is ecologically the most important for biodiversity and also the most subject to climate change. See id.


\(^{172}\) Treas. Reg. § 1.170A-14(d) (3)(i)–(ii).
local, state, or national park, nature preserve, wildlife refuge, wilderness area, or other similar conservation area.\textsuperscript{173}

As can be seen in the above regulation, the Treasury focuses on the protection of “relatively natural habitat” as a basis for a tax deduction.\textsuperscript{174} This standard is tempered by language that allows a deduction for natural habitats even though they may have been “altered to some extent by human activity” so long as fish, wildlife, or plants remain on the land in a “relatively natural state.”\textsuperscript{175} Unfortunately, this relaxed standard is conditioned by an example provided in the same subsection which states that habitat that has been “altered to some extent” still qualifies as a “relatively natural habitat” if the easement land still maintains a “wildlife community that included rare, endangered, or threatened native species.”\textsuperscript{176} One interpretation of this seemingly inconsistent language in subsection (i) is that the protection of unaltered habitat meets the test, but if the habitat is altered the test is only met if the resident species are “rare, endangered, or threatened” and “native.”\textsuperscript{177} This interpretation is unavoidably problematic because the regulation fails to define the terms “rare, endangered, or threatened,” leaving the reader to ponder if these words are used as terms of art as defined in the Endangered Species Act or if they apply outside of statutory law.\textsuperscript{178} Thus, this interpretation leaves open the question of whether the native species in question must have formally and officially been listed as “endangered or threatened” under the Endangered Species Act or under some similar state version of the Endangered Species Act.\textsuperscript{179}

Subsection (ii) likewise emphasizes the apparent requirement that the protected land contain rare, endangered, or threatened species.\textsuperscript{180} Subsection (ii) also seems to create a second category of land, “natural areas that represent high quality examples of a terrestrial community or aquatic community,” the preservation of which can result in a tax deduction.\textsuperscript{181} As in subsection (i), the standard is relaxed by allowing donations for lands that are not “intensely developed [and] where the

\textsuperscript{173} \textit{Id.}

\textsuperscript{174} \textit{Id.} \textsuperscript{\textsection} 1.170A-14(d)(3)(i).

\textsuperscript{175} \textit{Id.}

\textsuperscript{176} \textit{Id.}

\textsuperscript{177} See \textit{id.}


\textsuperscript{179} See 16 U.S.C. \textsection 1532(6), (20).


\textsuperscript{181} See \textit{id.}
coastal ecosystem is relatively intact.” A third category is also created. This category includes natural areas which are included in, or contribute to, the “ecological viability” of other preserved lands.

A broad brush reading of the above subsections leads to the conclusion that the Treasury requires land under a conservation easement to exist in one or more of the following conditions: (1) undisturbed relatively natural habitat; (2) somewhat altered habitat that contains rare, endangered, or threatened native species; (3) high quality examples of terrestrial or aquatic communities; or (4) natural areas that contribute to the ecological viability of other preserved lands.

As can be seen from the above regulations, the Treasury demonstrates at least some measure of bias for the protection of “native” species. As noted earlier, this is consistent with the “vignettes of nature” approach to conservation easements. However, in today’s climate-changed world of constantly migrating species, one must speculate how the Treasury regulations would apply where native species have been displaced by non-native invasive species, or whether it is permissible to protect non-native species as biological “replacement species.” Thus, it is possible to imagine that the IRS might disallow a deduction based on the protection of a “relatively natural habitat” of fish, wildlife, or plants, or similar ecosystem in an ecosystem where climate surfing species have driven the native species to extinction.

One means to bring some order to the problem of creating perpetual easements in a world of migratory flux is to categorize the types of questions we must ask ourselves in applying conservation easement law. For example, whether a habitat is “undisturbed” and “relatively natural” is a factual question to be answered by science. Likewise, whether a species is “native” to easement lands is also amenable to a scientific answer. Whether invasive species are driving down the native species is a factual question, one to be answered by monitoring the easement property. Whether species protected by a conservation easement are “rare, endangered, or threatened” is both a scientific question and a legal question because similar terminology exists in the federal Endangered Species Act and also in state statutes modeled after the Endangered Species Act.

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182 See id. § 1.170A-14(d) (3) (i)–(ii).
183 Id. § 1.170A-14(d) (3) (ii).
184 Id.
185 See id. § 1.170A-14(d) (3) (i)–(ii).
187 See id. § 1.170A-14(d) (3) (i).
Act.\textsuperscript{188} The consequence of the loss of native species on land subject to a donated conservation easement is a legal question, one to be answered by lawyers, judges, and the IRS. Clearly, when it comes to assessing the perpetuity of a conservation easement, the successful land trust must rely not only on the qualifications of its staff, but also on the expertise of scientists and lawyers.\textsuperscript{189}

B. Modifying the Conservation Purposes to Maintain an Easement

Whether a conservation easement is narrowly or broadly drafted in terms of the conservation purposes protected may determine whether the easement must be terminated if it becomes impossible or impractical to protect its conservation purposes.\textsuperscript{190} For example, should climate-change-driven migrations result in invasive species driving native species to extinction, presumably the holder of the conservation easement will note this change in the distribution of species compared to the original distribution in the baseline report. If the conservation easement was narrowly drafted so that the only conservation purpose was the preservation of a single, specific species, and that species was the one driven to extinction, it may be necessary to terminate the easement because it is impossible or impractical to carry out the easement purposes.\textsuperscript{191}

More typical, however, is for the conservation easement to contain broader language invoking the statutory purpose of “the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosystem.”\textsuperscript{192} If this is the case, that purpose can be tested against the standards in subsections 1.170A-14(d)(3)(i) and (ii).\textsuperscript{193} If, for example, the easement land still possesses “high quality examples of a terrestrial

\textsuperscript{188} Compare id. § 1.170A-14(d)(3)(i)–(ii), with Endangered Species Act § 3(6), (20), 16 U.S.C. § 1532(6), (20) (2006).


\textsuperscript{190} See Treas. Reg. § 1.170A-14(g)(6)(i).


community or aquatic community,” then termination of the easement is not required.\textsuperscript{194}

In the above example, if a single species were driven to extinction, the easement would be salvageable because it contained broad language protecting entire habitats. What, then, are the consequences of a complete climate-change-caused biological meltdown, where the damage includes not only the loss of species but of protected habitat as well? Imagine, for example, that warmer temperatures cause an insect such as the pine beetle to migrate north in search of a cooler climate. If the pine beetle is successful in its migration, it will end up in a pine forest where it has no natural enemies and plenty of pine trees for food and shelter.\textsuperscript{195} Eventually, the pine beetle will destroy the living pine trees and move on.\textsuperscript{196} The dead pine trees may not be able to recover, and other species which depended upon a healthy forest might migrate or die. This is a complete biological meltdown.

As in the loss of a single species scenario, if the conservation purposes were too narrowly drafted, it may be that the easement cannot meet the test of Treasury Regulations subsections 1.170A-14(d)(3)(i) and (ii).\textsuperscript{197} However, in the complete meltdown scenario it may be that even broader conservation purpose language cannot rescue the easement from termination.\textsuperscript{198} If this is the case, perhaps the easement should be terminated based on changed circumstances making it impossible or impractical to carry out.\textsuperscript{199}

An alternative to the drastic measure of termination is to amend the easement to protect different features of the property, for example other species, other habitats or, taking a different approach, amend the easement to protect additional purposes such as recreational or open space purposes.\textsuperscript{200} As noted earlier, the land trust community almost universally accepts as a standard that any amendment be “neutral to or enhance” the conservation purposes of the conservation easement.\textsuperscript{201} This raises an interesting theoretical question. In the situation where

\textsuperscript{194} See id. § 1.170A-14(d)(3)(ii).
\textsuperscript{196} See id.
\textsuperscript{198} See id.
\textsuperscript{199} See RESTATEMENT (THIRD) OF PROP.: SERVITUDES § 7.11 (2000).
\textsuperscript{200} See Byers & Ponte, supra note 105, at 183.
\textsuperscript{201} See id. at 184; McLaughlin, supra note 150, 1063 & n.141; James L. Olmsted, supra note 125, at 844.
the original conservation purposes are no longer relevant, how do you measure newly proposed conservation purposes against the “neutral to or enhance” standard? In other words, if all the original conservation purposes are rendered impossible or impractical to carry out, is it still possible to save the conservation easement by amending it, or is this a Catch-22 situation where there is no logical solution?

Just as the land trust community collectively endorses the “neutral to or enhance” standard for amendments to conservation easements, it also accepts the corollary to that proposition, that it is always permissible to make amendments that are more stringent or rigorous than the original provisions. To use the pine beetle example again, if a protected forest were destroyed by pine beetles, the conservation easement could possibly be amended to provide for restoration and remediation efforts to eradicate the pest and to replant the forest.

Although an amendment can be an intermediary solution, in some cases where amendment fails to solve the legal infirmity of a perpetual conservation easement, the easement should be terminated and re-deployed with new purposes matched to the altered landscape. For example, should a conservation easement “crash” after the loss of native species due to invasive species, a perhaps ideal solution would be to terminate the original conservation easement and replace it with a new conservation easement closely tailored to the post-invasion state of the lands to be protected. This would, of course, require either the parties to the original easement to agree to the new easement or new parties with the necessary qualifications to implement the new easement. In some instances, for example if the easement is interpreted as a charitable trust, it may additionally be necessary to seek approval to change the original conservation easement from the state attorney general as representative of the public’s interest in the conservation easement.

C. Cryptic Invasions

Another critical, yet seldom recognized reason for broadly drafting conservation purposes is the potential for invasive species to remain undetected until it is too late to counter their harmful effects on natural habitat and native species. In A Sound of Thunder, the cause of the change in history was initially unknown. It was only after Eckels

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202 See McLaughlin, supra note 150, 1063 & n.141.
204 See supra Introduction.
found the butterfly on the sole of his boot that the change was understood. Similarly, it is extremely likely that invasive species that intrude upon lands protected by conservation easements will initially be undetected. Indeed, such “cryptic invasions” will in all likelihood remain undetected until the damage they cause is irreversible. The probability that cryptic invasions will remain undetected despite monitoring by the holder of a conservation easement is due to a number of reasons. By way of examples, the invading species may be very small (even to the point of being microscopic), may have camouflage abilities, may be avian (and so is unrecognized in flight), may be nocturnal (and so is unrecognized in daylight), may be seasonal (and so may be absent when monitoring occurs), may burrow, may be aquatic, or may be extremely stealthy. Unfortunately, for the purpose of early detection of invasions, this is but a short list of reasons why an invasion might remain undetected until it becomes irreversible. The challenge of detecting invasions is more fully understood when one considers that the invading species may be bacterial, viral, fungal, algal, aquatic, amphibian, reptilian, avian, insect, or mammalian. And, of course, the list of cryptic invaders must also include plantae such as trees, herbs, bushes, grasses, vines, and ferns. Added to the problem of the complexity of nature and the immense numbers of different species, the land trust staff that is tasked with monitoring any given conservation easement may lack the scientific training to identify cryptic invaders. Indeed, it may be years after a crypto invasion before the ecosystem that it inhabits crashes, thus bringing the invasion to light based upon the effects of the invader rather than on the identification of the invader itself. By then it is probable that the affected ecosystems are irreparable and the biodiversity they represented is forever lost. Cryptic invasions are of immense importance to the land trust community. If, for example, a contemplated conservation easement acquisition will cover land that is

205 See id.

206 “Cryptic invasions” as used in this Article should not be confused with the term “cryptogenic,” which in the scientific lexicon refers to species that are not identifiable as either native or introduced. See Walther et al., supra note 58, at 687.

207 For a brief but enlightening discussion of invasions by fungal plant parasites, see Richard N. Mack, Assessing Biotic Invasions in Time and Space: The Second Imperative, in INVASIVE ALIEN SPECIES: A NEW SYNTHESIS, supra note 28, at 179, 196–201. See also id. at 191 (“Compared with vascular plants, insects are small, often highly mobile, and may be exceedingly cryptic. . . . The mobility of winged insects also frustrates attempts to provide estimates of their spatial distribution because their new range may change daily.”).

already subject to a cryptic invasion that will ultimately despoil the conservation purposes bargained for in the price negotiations for a purchased easement, the land trust may very well end up having spent public resources on ecologically devalued property. This and similar scenarios underscore the need for land trusts to have access to experts who can evaluate a property for such invisible invaders. However, even in those instances in which experts have approved a property for a conservation easement on the basis of the absence of cryptic invaders, the initial conservation purposes should be drafted broadly enough to allow the conservation easement to remain in effect and to address the consequences of ecological harm to natural habitat and native species by cryptic invasive species.

V. A Multiplicity of Preserves

A number of law review articles and books have proffered conservation easement drafting strategies with provisions to mitigate the harms caused by global warming and climate change, in particular to mitigate climate change-caused migrations.209 One solution that has wide currency is the opportunistic approach in which land trusts acquire “a multiplicity of preserves.”210 The background assumption for this strategy is that with enough protected lands, and enough connectivity between them, species would be free to “climate surf” northward, engaging in a sort of biological “habitat hopping” along the way.211 Presumably, this approach to global warming could proceed in an orderly and largely unassisted fashion. Thus, species A would out-migrate from protected habitat X to land on the more northerly protected habitat Y. In the interim, species B would out-migrate from its natural habitat to invade protected habitat X. There would be no harm to species A from species B as species A would have already decamped from the now invaded habitat.

As a variation on the multiplicity of preserves theme, it has been proposed that two types of conservation easements could be developed

209 See, e.g., Olmsted, supra note 125, at 786–809.
210 Id. at 795–96; see Brewer, supra note 103, at 100–02 (originating and explaining the “multiplicity of preserves” approach to species preservation); see also Douglas E. Booth, LAND TRUSTS AND BIODIVERSITY 77 (2007) (noting that to be effective in conserving biological diversity, numerous reserves protected by conservation easements and linked by migratory corridors will be necessary to supply replacement species to areas where species are lost due to climatic or other periodic disturbances).
211 See Brewer, supra note 103, at 102.
and used to mitigate climate change migrations.\textsuperscript{212} One type of easement would be the familiar perpetual easement, which was denoted as a “park” easement in that it would exist in perpetuity as a safe harbor for stable ecosystems.\textsuperscript{213} In contrast to park easements, non-perpetual “ark” easements were also proposed.\textsuperscript{214} Ark easements would represent strategically placed reserves that could be used as stepping stones for migrating species.\textsuperscript{215} Once it was determined that any such ark easement was no longer serving its ark purpose, it would be extinguished and the proceeds would be re-deployed to serve similar conservation purposes on new lands.\textsuperscript{216} Unfortunately, despite the flexibility of the “ark” versus “park” model, there can be no guarantee that it will work. Moreover, it is possible that it will even exacerbate species extinctions by allowing more mobile and adaptable species to outpace their natural enemies and to take up residence on habitat islands where they out-compete native species.

A. Challenges to Habitat Hopping Models

Based on conversations with conservation biologists and a review of the extensive literature on species extinctions, the habitat hopping solutions such as those proposed in the multiplicity of reserves model and the ark versus park model are unlikely to offer a complete solution to climate-change-caused migrations.\textsuperscript{217} One particularly thorny obstacle for the habitat hopping models is the decoupling of biologically essential synchronization of phenological schedules across multiple species. Phenology is the branch of science that addresses the relationship between climate and periodic biological phenomena.\textsuperscript{218} Examples of phenological behaviors are the blooming of flowers in spring, annual avian migrations in response to seasonal temperature changes, and small mammals beginning or ending hibernations in response to seasonal


\textsuperscript{213} Id. at 43, 46–47.

\textsuperscript{214} Id. at 44. No tax deductions would be available for the donation of a non-perpetual conservation easement. See Brewer, supra note 103, at 149.

\textsuperscript{215} Olmsted, supra note 125, at 802.

\textsuperscript{216} Olmsted, supra note 212, at 44–46.

\textsuperscript{217} See Brewer, supra note 103, at 109 (discussing how small preserves will rarely protect species from extinction as well as bigger ones can; however, small preserves may have educational value and can also serve as the basis for later acquisitions); Olmsted, supra note 125, at 796.

\textsuperscript{218} See Russell G. Foster & Leon Kreitzman, Seasons of Life 10 (2009).
changes in temperature and availability of food sources. The synchronies that develop between the phenological schedules of multiple species allow such relationships as predator and prey species and pollinating and pollinated species. Because some species will out-migrate in advance of species that regulate their numbers (for example, a prey species leaves a predator species behind) or are dependent upon them for services (for example, a bee species leaves flowering plants behind), habitat hopping will decouple essential phenological synchronies.

While it is tempting to assume that anthropogenic interventions, such as assisted migrations, might mitigate these problems, it is unlikely that any natural migratory behavior scrambled by the effects of climate change could be manipulated by humans to achieve anything near an orderly and linear migration from easement to easement.

Again, the butterfly effect trumps the falling domino effect. Climate-change-induced species migrations can be expected to be disorderly and unsynchronized. The appeal of any of the habitat hopping models is they would allow one species to out-migrate from a given habitat before another species attempts to colonize the same habitat, thus avoiding harmful interactions between invading species and pre-existing species. However, given the challenges to phenological pairings and unpredictable migrations, species preservation through a multiplicity of preserves model or an ark versus park model is a great idea, but there is no indication that these models will work.
B. “You Say Goodbye and I Say Hello”

This Article explores the legal consequences of climate-change-caused species migrations on conservation easements. For example, this Article suggests that a narrowly drafted conservation easement may be terminated if a species it was intended to protect out-migrates to cooler climes or is driven to extinction by in-migrations of invasive species on the easement land.\textsuperscript{226} To avoid such terminations, this Article argues that it may be possible to rehabilitate a conservation easement by broadening or multiplying its conservation purposes.\textsuperscript{227} For example, if the original conservation easement stated that its purpose was to protect species $A$ and species $A$ out-migrated or was driven to extinction by the invasion of species $B$, the conservation easement could be modified to protect recreational purposes, educational purposes, and/or open space purposes. The precise legal mechanism for doing so would be to amend the easement to add or to modify the conservation purposes. As noted, this may be legally problematic because conservation purposes are the measure of what may be amended, thus amending the conservation purposes may defeat perpetuity. On the other hand, it is generally accepted that any amendment that makes a conservation easement more restrictive will not defeat perpetuity.\textsuperscript{228} However, assessing whether any particular amendment that changes the conservation purposes is more restrictive may devolve into a matter of semantics and legal wrangling.

One way that conservation easement drafters can avoid this failure at the outset is to include more than one conservation purpose in the original document.\textsuperscript{229} Indeed, some drafters routinely pad conservation easements with multiple conservation purposes and subpurposes.\textsuperscript{230}

This Article also notes the possibility of habitat hopping solutions such as achieving a multiplicity of preserves or utilizing an ark versus park strategy for assisting in the “orderly” migration of species forced from their original habitats by climate change.\textsuperscript{231} However, this Article concludes that as currently proposed, such strategies are unlikely to succeed.\textsuperscript{232} Before jettisoning such hopeful ideas, there is a potential

\textsuperscript{226} See McLaughlin, supra note 150, at 424.
\textsuperscript{227} See Byers & Ponte, supra note 105, at 194.
\textsuperscript{228} See id.
\textsuperscript{229} See id.
\textsuperscript{230} See id. at 194, 392.
\textsuperscript{231} See Brewer, supra note 103, at 100–02, 109; Olmsted, supra note 125, at 795–96.
\textsuperscript{232} See supra Part V.A.
alternative view that could maximize the use of habitat hopping models. The land trust community could potentially adopt as “natural” a newly introduced species if it will apparently remain permanently and flourish on land under a conservation easement. The appeal of this approach is its simplicity. As each climate surfing species bids its former habitat goodbye, it is welcomed to its final habitat where it is integrated into the conservation easement monitoring data with the same status as a truly native species. A land trust holding a conservation easement may even go so far as to amend the conservation easement to list the new species as protected.

However this adopting as natural technique would not work for an invasive species that harms an original species or the ecosystem in the conservation easement. As explained above, the standard for amending the conservation easement to protect the new species must be “neutral to or enhancing” with regards to the original conservation purposes. Thus, if the potential new resident behaves as an invasive species and damages other species or habitats that are protected, the conservation easement cannot be amended to protect the new species, although it could arguably be amended to mandate eradication efforts aimed at the new species. Also as discussed earlier, the original conservation purposes could themselves be changed, by amendment, to allow protection of the new species. This, however, leads to the circularity

233 See Byers & Ponte, supra note 105, at 194. The following comments by internationally known conservation biologist Reed Noss illustrate the tension between differing responses to non-native species. Thus, holders of land trusts must decide if they are going to vigorously eradicate all newcomers to easement land or if they are going to welcome or otherwise “adopt” non-native but non-invasive immigrant species:

Generally, conservation biologists acknowledge that most non-native species are unlikely to become invasive and do harm. However, as part of a precautionary approach, the best strategy is prevention—keeping non-native species from being introduced intentionally or accidentally by humans. If an introduction occurs, then it is often wise to eradicate the population before it grows so large or widespread that eradication is not feasible. If too late for that, then focus resources on non-native invasive species that are causing the most harm (again, with islands being most vulnerable).

My general advice is that we have to expect natural communities to change over time, with species added and subtracted to/from specific sites, so that easement law and policy must be flexible enough to accommodate such changes.

E-mail from Reed Noss, Ph.D., Dir., Sci. & Planning in Conservation Ecology (SPICE) Lab., Univ. of Cent. Fla., to author (Apr. 7, 2010) (on file with author).

234 See Byers & Ponte, supra note 105, at 183.
235 McLaughlin, supra note 150, at 1072–75, 1090.
236 See McLaughlin, supra note 150, at 424.
which was noted earlier as making amendments to the conservation purposes themselves is problematic. In the end analysis, in deploying multiple novel conservation easements, one can never be certain there is not a butterfly on the sole of his boot until, of course, it is too late.

Conclusion

Global warming will cause unpredictable and destabilizing migrations of species, many of which will become invasive in their new biomes. Such invasions will cause extinctions, and extinctions will decrease biodiversity. Without biodiversity we will lose ecological services. We will also lose the complexity and uniqueness of each one of thousands of species that we will drive to extinction. Because land trusts are carrying most of the burden of saving natural lands in the United States and other nations, it falls to the land trust community, and to its oversight institutions such as the Land Trust Alliance, to address the stark reality of climate-change-driven harmful invasions. Indeed, land trusts and the Land Trust Alliance must make it their prime imperative to alter this ecologically fatal trajectory we have embarked upon for the sake of wealth and convenience.

This Article has outlined a set of critical policy choices that demand the attention of the land trust community and of conservation-minded landowners. These policy choices relate to how conservation easements should be drafted to respond to the threat of present and future climate change-caused extinctions that result from non-native invasive species disembarking on easement lands. This Article does not presume to dictate how land trusts should respond to this threat, but it does offer the following sample of drafting strategies and policy directions.

1. To the greatest extent possible, routine monitoring of easement lands should be done under the guidance of scientists.

2. In monitoring conservation easements, both macro-habitats and micro-habitats should be considered. No species should be ignored on the basis of its small size. Likewise, care should be taken to detect microbial, insect, aquatic, avian, nocturnal, camouflaged, or secretive species.

237 See Olmsted, supra note 125, at 787–88.

238 Malcolm, supra note 221, at 835.

239 See Tausch, supra note 221.

3. The results of any monitoring excursion should be compared with the results of previous monitoring excursions to determine the presence of non-native species.

4. One of the following policies should be chosen: (a) all non-native species will be eradicated; (b) only harmful, invasive, non-native species will be eradicated; (c) harmless non-native species will be brought under the protection of the conservation easement; or (d) invasive species will be dealt with on a case-by-case basis in consultations with scientists and governmental entities.

5. If eradication measures are taken, the obligation to implement them must be allocated between conservation easement grantors and grantees.

6. Should invasive species cause harm to the conservation purposes, risk and liability for restoration and remediation must be allocated between grantors and grantees.

This is a brief, broad brush list of drafting and policy options. Hopefully, it will engender future efforts to identify additional global warming and climate change issues and to respond to them in terms of conservation easement drafting and practice.

This Article was inspired by two panel presentations at the 2010 Public Interest Environmental Law Conference held annually at the University of Oregon School of Law in Eugene, Oregon. This conference is the largest and oldest of its kind in the world. Although conservation easement law and practice are but a small part of the conference, the 2010 conference had two panels devoted to drafting conservation easements responsive to global warming and climate change. One panel, which was comprised of lawyers, law professors, and a scientist, focused on how to draft conservation easements that

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241 See Reed F. Noss, Professor of Conservation Biology, Univ. of Cent. Fla.; Jessica Green, Professor, Ctr. for Evolutionary Biology, Univ. of Or.; John Chapman, Professor of Aquatic Invasion Ecology, Or. State Univ.; and James L. Olmsted, Conservation Easement Attorney; Conservation Biology in Managing Perpetually Preserved Lands (Feb. 26, 2010) [hereinafter Panel One]; Nancy A. McLaughlin, Robert W. Swenson Professor of Law, Univ. of Utah Sch. of Law; James L. Olmsted, Conservation Easement Attorney; Jessica Owley Lippman, Assistant Professor, Pace Law Sch.; Adena Rissman, Assistant Professor, Dep’t of Forest & Wildlife Ecology, Univ. of Wis.; Conservation Easements and Climate Change (Feb. 26, 2010) [hereinafter Panel Two]; About the Public Interest Environmental Law Conference, Univ. Or. Sch. Law, http://www.pielc.org/pages/about.html (last visited Dec. 22, 2010).

242 About the Public Interest Environmental Law Conference, supra note 241.

243 Panel One, supra note 241; Panel Two, supra note 241.
are responsive to global warming and climate changes and also navigate potential legal obstacles such as the loss of perpetuity.\textsuperscript{244} The other panel included three scientists and one lawyer, and discussed how science could contribute to the selection of lands for perpetual protection in the age of global warming.\textsuperscript{245} Perhaps the real magic of these two panels was that the lawyers and the scientists were able to mingle and share their ideas about global warming and conservation easements. The world cries out for more such collaborations between scientists and lawyers on the front lines of efforts to mitigate and adapt to global warming and climate change. Hopefully, similar panels and similar interactions can be orchestrated in the future. In the meantime, we should all avoid stepping on butterflies, both metaphorical and real.

\textsuperscript{244} See Panel Two, supra note 241.

\textsuperscript{245} See Panel One, supra note 241.
THE VERY DEFINITION OF FOLLY: SAVING THE EARTH FROM ENVIRONMENTALISTS

MATTHEW F. PAWA*

Abstract: Global heating is the greatest challenge of our time. While we know what is causing the global heating problem, and we know how to fix it, certain environmentalists pose a severe threat to the great hope of renewable energy that must be part of the solution to global heating. All across the United States those claiming to speak for the environment are filing legal actions against developers of solar and wind projects. They are using environmental laws, zoning laws, and anything else they can latch onto to fight renewable energy projects. This is the very definition of folly. We environmental lawyers have perfected the art of slowing down, burdening, and questioning to death developers. It was a great strategy for fighting the bad guys. But it is now presenting one of the biggest threats to the good guys, and to our environment. We now need to learn how to say “yes.”

Introduction

Global heating is the challenge of our time. And lawyers have a vital role to play in rising to the challenge. There are reasons for great hope that we can and will rise to meet this challenge. But due to an alarming new trend among some of those who consider themselves protectors of the environment, lawyers are needed now more than ever if we are to rise to this challenge.

What I have to say about some environmentalists threatening the planet will no doubt be considered controversial. Before we get there, however, I want to talk to you first about why I call it “global heating” and, second, about the legal battles over global heating that I have had the privilege to be involved in.

I. Global Heating Cases

Why call it “global heating” and not the more commonly used “global warming” or “climate change”? I call it “global heating” because to be warm is nice. To be hot is not nice. The process of planetary cooking we are now experiencing is not nice, and so global heating is the more appropriate term. “Climate change” is technocratic and lacks verve; while it may be more accurate from a technical perspective, it fails to invoke any normative values and thus will never promote concern or action.

I have had the privilege to be involved in two major tort cases on the front lines of global heating. The first case is Connecticut v. American Electric Power Co (AEP). 1 In AEP, a group of eight states, the City of New York, and three land trusts, whom I represent, filed suit in 2004 against five of the largest greenhouse gas (GHG) emitters in America. 2 The defendants are all electric utilities that burn large quantities of coal. 3 Together these five companies are responsible for producing about twenty-five percent of all the United States electric power sector’s carbon dioxide emissions. 4 We allege that these emissions are contributing to a massive public nuisance, namely, global heating. 5 Our case sounds in the federal common law of public nuisance that applies to interstate pollution. 6 We seek an injunction that would require these major GHG emitters to reduce their emissions over a period of years. 7 Our causation theory is based upon the principle that each non de minimis contributor to a public nuisance is liable for having contributed to an indivisible harm. 8

1 582 F.3d 309, cert. granted, 131 S. Ct. 813 (2010).

Even if the amount of pollution caused by each party would be too slight to warrant a finding that any one of them had created a nuisance (the common law basis for treating pollution as a tort), “pollution of a stream to even a
The district court in *AEP* dismissed the case on the basis of the political question doctrine. We appealed and had oral argument in the Second Circuit in June of 2006, before a panel of three judges that included then Judge, now Justice, Sonia Sotomayor. In 2009, the two remaining judges on the panel reversed the district court’s decision on the political question doctrine, and held that all plaintiffs have proper standing and had stated a proper claim under the federal common law of public nuisance. The essence of the Second Circuit holding is that GHG emissions can be subjected to tort law causes of action just like other kinds of pollution. On March 10, 2010, the Second Circuit denied the defendants’ petition for rehearing en banc. The defendants appealed, and on December 6, 2010, the Supreme Court granted certiorari on the defendants’ appeal. Stay tuned.

The second tort case is *Native Village of Kivalina v. ExxonMobil Corp.* In this case, a community of Inupiat Eskimos located in the Arctic Circle on the coast of Alaska sued twenty-four oil, energy, and utility companies. As in the *AEP* case, we allege that the defendants have contributed to global heating, and that global heating is a public nuisance under federal common law. But unlike *AEP*, in *Kivalina* we seek monetary damages. Specifically, we seek the hundreds of millions of dollars that are urgently needed to move the village out of harm’s way.

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*slight extent becomes unreasonable [and therefore a nuisance] when similar pollution by others makes the condition of the stream approach the danger point.*

*Id.* (citation omitted); see also *Restatement (Second) of Torts* § 881 cmt. d (1979) (“It is also immaterial that the act of one of them by itself would not constitute a tort if the actor knows or should know of the contributing acts of the others.”).

9 *Am. Elec. Power Co.*, 406 F. Supp. 2d at 274 (holding that this case presented non-justiciable political questions that are consigned to the political branches and not to the courts).


11 *Id.* at 315.

12 *See id.* at 366–69.


16 *Id.* at 868.


way.\textsuperscript{19} The village is being destroyed by global heating, which is melting the landfast sea ice that formerly protected the village from harsh fall and winter storms.\textsuperscript{20} With the ice forming later, breaking up earlier, and becoming thinner and less extensive due to global heating, Kivalina is being battered to death by storms that are literally washing the village away.\textsuperscript{21} For a short period in December of 2009, there was no sea ice at Kivalina.\textsuperscript{22} The situation for the village has reached a crisis.

As in \textit{AEP}, a federal judge in California dismissed our case on the basis of the political question doctrine, and on the alleged inability to establish the causal element of standing.\textsuperscript{23} In so doing, the \textit{Kivalina} trial court stated its express disagreement with the Second Circuit’s ruling in \textit{AEP}.\textsuperscript{24} We have appealed and filed our briefs in the Ninth Circuit.\textsuperscript{25} Again, stay tuned.

A final global heating case—or really a set of cases—I would like to share with you are the “Clean Car” cases.\textsuperscript{26} Several years ago the automobile industry sued three states—California, Vermont, and Rhode Island—that had adopted a set of identical regulations limiting GHG emissions from motor vehicles.\textsuperscript{27} Under the Federal Clean Air Act, California, which was regulating automobile emissions before the federal statute was enacted, is allowed to set more stringent auto emissions regulations, and other states may then adopt the stricter California standards.\textsuperscript{28} That is exactly what has happened with GHG emissions; with California leading the way, over a dozen other states followed suit.\textsuperscript{29} The car companies, led by General Motors and Chrysler, argued

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\item \textsuperscript{19} \textit{Kivalina}, 663 F. Supp. 2d at 869.
\item \textsuperscript{20} \textit{Id}.
\item \textsuperscript{21} \textit{Id}.
\item \textsuperscript{22} As reported to the author by co-counsel visiting the village in December 2009. \textit{See also} Applied Physics Laboratory, Polar Science Center, \textit{Arctic Sea Ice Volume Anomaly}, U. of Wash., http://psc.apl.washington.edu/ArcticSealiceVolume/IceVolume.php (showing graph depicting shrinking levels of Arctic sea ice over the years) (last visited Feb. 15, 2011).
\item \textsuperscript{23} \textit{Kivalina}, 663 F. Supp. 2d. at 871–77, 881–82.
\item \textsuperscript{24} \textit{Id.} at 875.
\item \textsuperscript{25} Appellants’ Opening Brief, Native Vill. of Kivalina v. ExxonMobil Corp., No. 09-17490 (9th Cir. Mar. 10, 2010), \textit{available at} http://www.pawalaw.com/assets/docs/kivalina-9th-circuit-appellants-brief.pdf.
\item \textsuperscript{27} \textit{See Lincoln-Dodge}, 588 F. Supp. 2d at 226; \textit{Chrysler-Jeep}, 529 F. Supp. 2d at 1163; \textit{Green Mountain}, 508 F. Supp. 2d at 301.
\item \textsuperscript{28} \textit{Lincoln-Dodge}, 588 F. Supp. 2d at 226; \textit{Chrysler-Jeep}, 529 F. Supp. 2d at 1156.
\item \textsuperscript{29} \textit{See}, e.g., \textit{Lincoln-Dodge}, 588 F. Supp. 2d at 226; \textit{see also} Press Release, Environmental Defense Fund, 13 States Adopting California Clean Car Standards Would Reap Significant
that the state regulations are preempted by the federal fuel economy law.\textsuperscript{30} I represented environmental groups that intervened on behalf of the states.\textsuperscript{31}

I am pleased to tell you that we were victorious in all three of the Clean Car cases.\textsuperscript{32} In the Vermont case, the court held a bench trial in 2007 that resulted in a lengthy opinion upholding the state regulations.\textsuperscript{33} The case is notable, among other reasons, for holding that the science of global heating meets the rigorous standards of admissibility for scientific evidence.\textsuperscript{34} In fact, after hearing the testimony of our expert, Dr. James Hansen, the court concluded: “That global warming is taking place as a result of human emissions of carbon dioxide and other greenhouse gases, and that its consequences are likely to be harmful, is widely accepted in the scientific community.”\textsuperscript{35} Additionally the court found, based on Dr. Hansen’s testimony, that it is not necessary to find that any single action to reduce emissions will solve the global heating problem in order for that action to be upheld as a meaningful step in the right direction towards addressing global heating.\textsuperscript{36}

Following this victory, the California federal court upheld California’s GHG regulations on summary judgment, and the Rhode Island federal court dismissed the automakers’ claims against Rhode Island on the basis of collateral estoppel.\textsuperscript{37} In the California decision, Judge Anthony W. Ishii recognized the severity of the global heating problem and the urgent need to reduce emissions.\textsuperscript{38} Judge Ishii stated that “[g]iven the level of impairment of human health and welfare that current climate science indicates may occur if human-generated greenhouse gas emissions continue unabated, it would be the very definition

\begin{thebibliography}{99}
\bibitem{edf} Economic and Environmental Benefits (June 30, 2009), \textit{available at} http://www.edf.org/pressrelease.cfm?ContentID=10069 (reporting that thirteen states have followed California’s lead and adopted the Clean Car standards).
\bibitem{lincoln} \textit{Lincoln-Dodge}, 588 F. Supp. 2d at 226; \textit{Chrysler-Jeep}, 529 F. Supp. 2d at 1154; \textit{Green Mountain}, 508 F. Supp. 2d at 301; \textit{Am. Bar Ass’n, Global Climate Change and U.S. Law} 154 (Michael B. Gerrard ed., 2007).
\bibitem{chrysler} \textit{Chrysler-Jeep}, 529 F. Supp. 2d at 1153.
\bibitem{green} \textit{Green Mountain}, 508 F. Supp. 2d at 399.
\bibitem{seeid1} \textit{See id.} at 310–12.
\bibitem{id} \textit{Id.} at 341.
\bibitem{seeid2} \textit{See id.} at 320 (“The fact that global warming will not be solved by changes in any one industry or by regulation of any one source of emissions in no way undercuts . . . the validity of partial responses; rather, it points to the necessity of responses, however incomplete when viewed individually.”).
\bibitem{chrysler2} \textit{Chrysler-Jeep}, 529 F. Supp. 2d at 1170.
\end{thebibliography}
of folly” if government could not take action to reduce automobile greenhouse gas emissions “simply because the level of decrease in greenhouse gas output is incompatible with existing [federal] mileage standards.” The “very definition of folly”—what incredibly wise words. I will come back to this phrase in a few minutes as it so perfectly describes the alarming new trend I mentioned at the beginning of this Article.

The automobile industry appealed all three of the Clean Car cases. But those appeals were dismissed as a result of a national settlement brokered by the White House, in which the state GHG standards will be codified in federal regulations issued jointly by EPA and the Department of Transportation. The upshot is that the auto industry has surrendered: it lost not only its legal quest to strike down certain states’ GHG laws, but the challenged state regulations are now being extended to the entire nation. In the long run, the automobile industry will probably be grateful, since it is being forced to modernize.

These global heating cases that I have had the privilege to be involved in are part of a growing legal field—global heating law. In 2001, when I set out to practice what I now call global heating law, I sometimes wondered if perhaps I had lost my mind. After all, I was embarking on the practice of law in a field that did not exist. But over the last decade, global heating law has gone from a lark, to a smattering of cases, to a cottage industry, to a full-blown field of law. Global heating law is now taught at many law schools, including Boston College Law School, and practitioners can now be found at law firms in every major legal market in the country.

I am not just talking about tort law. As evidenced by the Clean Car cases, tort law is just one of many areas of the law that is being brought

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39 Id.
to bear on the problem. The Columbia Law School Center for Climate Change Law—the existence of which is itself a testament to this burgeoning area of the law—has put together a chart to keep track of all the global heating cases. Several years ago this chart was just a single page. It is now two hundred and forty-six pages long. For those of you who want to practice global heating law, this is good news.

In this unfolding story of global heating law, the particular virtue of tort law is that it can force the polluters to internalize the true costs of their pollution and thus level the playing field for competition with clean energy companies. If a coal-burning power plant can park its carbon dioxide in our atmosphere free of charge, and without ever being held liable for the injuries that result, that puts solar and wind companies at a severe and unfair competitive disadvantage. Clean energy companies have shouldered the costs of avoiding GHG emissions in the production of energy, yet their dirty energy competitors are getting a free ride on our atmosphere. Tort law can help internalize some of those costs.

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46 See Gerrard & Howe, supra note 45.


49 See id.; see also Robert H. Cutting & Lawrence B. Cahoon, The “Gift” That Keeps On Giving: Global Warming Meets the Common Law, 10 VT. J. ENVTL. L. 109, 113–14 (2008) (discussing cost savings by companies that avoid greenhouse gas reductions, and how this exacerbates the problem by providing them with an unfair competitive advantage).

50 Cutting & Cahoon, supra note 49, at 124 (“[T]ransboundary pollution, such as GHG emissions, expose receptors, as ‘test subjects’ of the pollution, to long-term and short-term damages that are external social costs, or ‘externalities.’ This is a market failure because . . . those costs are borne by the receptors or the taxpayers (e.g. healthcare or cleanup costs).”); Cutting & Cahoon, Thinking Outside the Box: Property Rights as a Key to Environmental Protection, 22 PAGE ENVTL. L. REV. 55, 65 (2005) (“[Environmental externalities] reflect the ability of one entity, e.g., a company, to use water or air as a free resource for waste disposal, while others pay the cost in contaminated air or water.”); James L. Huffman, The Public Interest in Private Property Rights, 50 OKLA. L. REV. 377, 380 n.11 (1997) (“When those costs are ‘externalized’ to third parties, there is a market failure in the sense that one of the assumed conditions of an efficient market is missing.”).
II. Hope for the Future

I said earlier that there are reasons for great hope that we can meet the challenge of the global heating crisis. Two reasons in particular give me such hope. The first is our scientific understanding of the problem. We should be grateful that although technology in many ways created the global heating crisis, we have the technology and understanding to know with reasonable certainty what is happening to our planet.\(^{51}\) The worldwide scientific enterprise has revealed extraordinary insights into the causes, impacts, and risks of global warming. We know what is happening, we know why, and we know how to fix it if we care to do so.

How to fix the problem is what I really want to discuss. We have all the renewable energy we need to solve the global heating problem.\(^{52}\) A recent study in *Scientific American* spelled out a scenario for providing all the world’s energy needs by 2030 from renewable sources: wind, water, geothermal, and solar power.\(^{53}\) The plan includes large, utility-scale development of wind and solar farms.\(^{54}\) Those of you like me, who love free rivers, will be glad to know that this plan calls for very few large, new hydropower plants.\(^{55}\) And those who advocate for distributed generation will be glad to know that it also calls for a maximal use of small, rooftop solar installations.\(^{56}\)

The authors show that we have far more solar and wind resources available to us in harvestable places than we need to supply human energy needs.\(^{57}\) There are forty to eighty-five terawatts of available wind power, and 580 terawatts of available solar power, compared to our current total energy needs of twelve and a half terawatts.\(^{58}\) Yet our current generation from wind and solar is only 0.02 and 0.008 terawatts, respectively.\(^{59}\)

\(^{53}\) Id.
\(^{54}\) Id.
\(^{55}\) Id. at 60 (stating that most suitable large reservoirs are already providing hydroelectric power).
\(^{56}\) Id. (stating that another forty percent of power would come from photovoltaic sources, with about thirty percent of that output coming from rooftop panels on homes and commercial buildings).
\(^{57}\) Id. at 56.
\(^{58}\) Jacobson & Delucchi, *supra* note 52, at 60.
\(^{59}\) Id.
The plan outlined in the *Scientific American* article includes 3.8 million wind turbines of five megawatts each. The direct footprint of these wind turbines would occupy less than fifty square kilometers, an area smaller than the size of Manhattan. Even when the spacing between turbines is factored in, they would occupy less than one percent of Earth’s surface and the area between such turbines would be usable for agriculture, open land, or water. The plan further calls for 49,000 concentrated solar power plants and 40,000 solar photovoltaic plants, which, again, would occupy a tiny fraction, 0.33 percent, of the Earth’s surface. While I do not suggest that this plan is perfect or that the authors have solved every wrinkle, their basic point is incontrovertible: by taking what we already know how to do, and reasonable estimates of expected technological progress, we could, if we so desired, massively ramp up renewable energy to a level that would largely, if not totally, replace fossil fuel generation. And we could do so in a timeframe that would be consistent with scientific consensus about when we need to act to avoid dangerous global heating.

The alternative to building this massive renewable energy infrastructure is to build about 13,000 new coal-fired power plants. Coal is not only the primary culprit in the global heating crisis, but building this many coal-fired plants, combined with the coal mining process itself, would take up far more land than the footprint of the proposed renewable plants. And this is not to mention the role of coal in poisoning our air and water, nor the high toll on the health and well-being of the people who work in coal mines, who could be retrained for better jobs with brighter futures in clean, renewable energy.

This *Scientific American* article also examines the cost of building this massive renewable energy infrastructure, and finds it to be economically feasible. While it costs ten times as much to build the renewable infrastructure as it would to build the 13,000 coal plants, the fuel is free—forever. More importantly, the cost comparison of renewables versus

60 Id. at 61.
61 Id.
62 Id.
63 Id.
64 Jacobson & Delucchi, *supra* note 52, at 61.
65 See id. at 65 (estimating a full conversion to a clean energy system in forty to fifty years based on reasonably modest policies).
66 Id. at 61.
67 Id.
68 See id. at 64.
69 See id.
fossil fuels always ignores the costs of fossil fuel combustion and global heating. How much are all those premature deaths from air pollution worth? How much is it worth to have virtually all the lakes and streams in the Northeastern United States so poisoned with mercury from coal-fired power plants that you should not eat the fish?\(^{70}\) How much is an eroded coastline worth?\(^{71}\) How much is New Orleans worth?\(^ {72}\) The California mountain snowpack—a vital source of freshwater water for the largest state in the Union—will decline as a result of global heating; how much is that worth?\(^ {73}\) The World Health Organization says it is likely that 150,000 people already die every year from global heating; how much is that worth?\(^ {74}\) How much is it worth to have global heating displace a billion people?\(^ {75}\) How much is it worth that our massive emissions of GHGs threaten to take the Earth’s climate over a dangerous tipping point—a point of rapid, non-linear climate change that would push the Earth into a climate unlike any we have ever experienced during human civilization?\(^ {76}\) How much, at long last, is a planet worth?

Conventional economics says the answer to all these questions is zero. The fossil fuel companies get all the profits, and the public and victims pay the costs. I hope now you are thinking back to what I said earlier about externalities. The cost comparisons almost always ignore the damages to human lives, health, and the environment from our reliance on fossil fuels.\(^ {77}\) Tort law plays an important but ultimately modest role in internalizing these costs. Only the most obvious victims who can prove clear causal chains for existing harms will ever recover damages, even in a well-developed tort system.\(^ {78}\)


\(^{77}\) See Plater et al., supra note 48, at 27 n.1.

\(^{78}\) See id. at 101–02.
III. The Very Definition of Folly

I have just said that I have hope, and that we all have reason to hope: we know what is causing the global heating problem, and we know how to fix it. Yet today, the reasons for hope are under attack. We all know about the cynical, industry-driven attacks on mainstream science. What I want to talk about now is another severe threat to the great hope of renewable energy.

What I am about to say will no doubt be viewed by many as provocative, divisive, and incendiary. But it must be said: the great hope of renewable energy is under severe threat from certain environmentalists.

Consider the following. A federal court halted a wind company’s plans to build 122 wind turbines on a ridge in Appalachia because of concerns about the impact on an endangered species, the Indiana bat.79 Similarly, in California, conservation groups are opposing a project that would create tens of thousands of concentrated solar power dishes in the Mojave Desert because of its potential impact on wildlife, including the desert tortoise and fringe-toed lizard.80 This project would generate 850 megawatts of clean, renewable energy and help the state meet its ambitious goal of generating one-third of the state’s electricity from renewables by 2020.81

The Forest Ecology Network, a forest conservation organization, is opposing a proposal to build forty-nine wind turbines on mountain tops in rural Maine.82 This group argues that wind turbines should be built offshore or in more heavily populated areas and not in the pristine Maine woods.83 Yet this organization spends much of its time and efforts trying to raise awareness of the threat of global heating to the Maine woods.84 Its members’ magazine recently featured an image of

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81 See id.
83 Id.
the Earth burning in a pot on a stovetop and asks, “Have we passed the tipping point?”

All across the United States those claiming to speak for the environment are filing legal actions against developers of solar and wind projects. They are using environmental laws, zoning laws, and anything else they can latch onto to fight renewable energy projects. To borrow Judge Isshi’s phrase, this is the very definition of folly.

I do not mean to suggest that all environmental groups or environmentalists are joining this ill-conceived movement to challenge renewable energy projects. That is far from the case. Many professionals in the field of environmental protection are taking stands in favor of renewable energy projects—even controversial ones—and have wisely noted that the production of energy always involves some kind of tradeoff. It is a minority of the environmental movement that is taking legal action against vital renewable energy projects, but a vocal and active minority that is armed with all the legal tools devised over many years to fight harmful industrial development.

There are so many of these challenges that the United States Chamber of Commerce has launched a media outreach project called “Project No Project”—a tracking system with an interactive map of the United States showing scores of renewable energy projects that are the subject of regulatory challenges. This being the Chamber of Commerce, there is, I suspect, a lot of exaggeration behind Project No Project. And the Chamber’s interactive map of delayed projects depicts not only delayed renewable energy projects, but also delayed or cancelled coal-fired power plants, which the Chamber views as bad news, but which I would suggest is very good news.

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86 See Joanna Kakissis, Debating the Merits of Energy From Air, N.Y. Times, Nov. 25, 2007, at D6 (“[A]s the [wind] industry expands amid global pressure to cut carbon emissions and fight climate change, an increasingly mobilized anti-wind farm lobby in Europe, North America and elsewhere is decrying the turbines as ugly, noisy and destructive, especially for picturesque locales that rely on tourism.”).
tant kernel of truth in Project No Project. Environmental and zoning laws are being used to hold up vital renewable energy projects nationwide. Even where the opposition consists of little more than shortsighted NIMBY-ism,⁹¹ the opponents are now able to steal a page from the environmentalists’ legal playbook.

The most extreme example of this alarming trend is right here in Massachusetts. I am referring to Cape Wind. The Cape Wind project proposes to erect 130 turbines in Nantucket Sound, which would produce three-quarters of the energy needs of the Cape and Islands.⁹² Cape Wind has passed every environmental review with flying colors.⁹³ It has been endorsed by the Massachusetts Audubon Society and Conservation Law Foundation.⁹⁴ The turbines would look so small from shore that if you hold out your hand at arm’s length and point your thumb up, your thumb would block your view of a turbine.⁹⁵ Cape Wind is a vital project if Massachusetts is to achieve its goal of producing twenty percent of its energy from renewable sources by the year 2020.⁹⁶

As a lawyer representing the citizens group Clean Power Now, which advocates in favor of Cape Wind and other renewable energy projects, I can offer you some insights into the Cape Wind battle. The opponents of the project are predominantly a small group of extremely wealthy landowners who own lavish seaside properties, and who are concerned about their view and their yachting areas.⁹⁷ They have hired high-powered lawyers and waged a scorched-earth litigation campaign against Cape Wind. The organization that has led the charge goes by the name of the Alli-

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⁹¹ NIMBY is an acronym for the phrase “not in my backyard.” See Project No Project, supra note 89.
ance to Protect Nantucket Sound. A major funder of this campaign has been none other than coal, oil, and gas magnate William Koch. The Alliance to Protect Nantucket Sound is joined in this campaign by town officials from Cape Cod who have narrow, parochial concerns, and who are determined to stop the project at all costs.

The Alliance to Protect Nantucket Sound and Cape Cod towns have filed countless legal challenges against Cape Wind. They have filed cases in Barnstable Superior Court, with state administrative agencies, and in federal court. So far they have lost every single one of the numerous cases they have filed, most of which border on, if not cross right into, the frivolous. But the result nonetheless has been an arduous and decade-long permitting process for this vital renewable energy project.

One area of legal challenge to Cape Wind has been the permitting of the transmission line. The transmission line is, in essence, a long extension cord that will connect Cape Wind to the grid. While the wind farm itself is located in federal waters, and thus beyond state jurisdiction, the transmission line crosses over state waters and onto land within the state, thus giving Massachusetts permitting authority over the line. The process has been lengthy and redundant. The State's Energy Facilities Siting Board (EFSB) issued a permit in 2005, which was

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98 See About Us, Alliance to Protect Nantucket Sound, https://org2.democracyinaction.org/o/6891/content_item/aboutus (last visited Feb. 15, 2011).
99 Doyle, supra note 97 (stating that Koch and his counterparts have provided ninety percent of the funding for the Alliance to Protect Nantucket Sound).
100 See Stakeholders, Alliance to Protect Nantucket Sound, http://org2.democracyinaction.org/o/6891/content_item/stakeholders (last visited Feb. 15, 2011) (demonstrating that the Cape Cod Chamber of Commerce is a stakeholder in the organization).
103 See Michael C. Bailey, Alliance to Protect Nantucket Sound Files Suit Against State, Enterprise, (Nov. 5, 2010), http://www.capenews.net/communities/region/news/621 (“The opposition group is fond of litigation but they have not enjoyed much success with it,’ he said, noting, ‘their losing legal track record stands at zero for 15, and counting.’”) (quoting Mark Rodgers, director of communications for Cape Wind).
106 Id.
upheld by the Massachusetts Supreme Judicial Court in 2006. But the Cape Cod Commission, a local permitting agency, succumbed to parochial concerns and denied Cape Wind’s application. This was rank hypocrisy since the Commission had recently approved an even longer transmission line across Nantucket Sound without raising the slightest concern.

Cape Wind sought review of the Commission’s decision from the State EFSB. I am pleased to tell you that the Board issued a statewide composite permit for the transmission line that not only reverses the Cape Cod Commission’s decision, but constitutes a unified state authorization under all state and local laws. Opponents again decided to draw out the process and filed an appeal to the Supreme Judicial Court. However, on August 31, 2010, the Supreme Judicial Court decided in favor of Cape Wind, and thus the state permit battles are now over once and for all. Although the transmission line issues are resolved in favor of Cape Wind, it was still a long and expensive path to finally resolve all of the opposition’s challenges.

Another area of legal challenge to Cape Wind has been the federal final environmental impact statement (EIS) review. The Department of the Interior issued an EIS in 2009 that demonstrates the benign nature of the project; and issued a federal lease to Cape Wind on October 6, 2010. On June 25, 2010, Cape Wind opponents filed suit against the Department of Interior, alleging violations of the Endangered Species

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107 Id at 295, 298.
109 See Letter from Margo Fenn, Exec. Dir. Cape Cod Comm’n, to Ellen Roy Herzfelder, Sec’y of Env’t Affairs (Feb. 6, 2004) (on file with author) (recommending that the Secretary not require an Environmental Impact Report for the Nantucket cable project); Nantucket Cable Project, Nat’l Grid, http://www.nationalgridus.com/nantucket/about_us/cable.asp (last visited Feb. 15, 2011).
110 Alliance II, 932 N.E.2d at 791.
111 See id.
Act due to trivial impacts on birds. By their own account, the project will kill eighty to 100 Roseate Terns and up to ten Piping Plovers over a period of twenty years. The plaintiffs in this short-sighted legal challenge include the coal-money-funded Alliance to Protect Nantucket Sound, the Lower Laguna Madre Foundation—which is a Texas conservation group dedicated to preserving a bay in Texas—and Californians for Renewable Energy, which opposes new fossil fuel power plants in California, and advocates in favor of renewable energy, but for reasons unknown opposes this renewable energy project located thousands of miles away from California.

I have seen Piping Plovers myself on Cape Cod. They are beautiful and make a wonderful little peep. They nest really close to the sea—the sea that is precipitously rising due to global heating. We must save them if we can. Their coastal nesting areas are doomed if we do not fight the global heating fight with everything we have got. Are the opponents thinking about any of this, about the long-term survival of all the animals they are supposedly advocating for, or are they only concerned about their views and yachting grounds?

Cape Wind would constitute one of the single largest supply side reductions in GHGs ever accomplished in America. It would be our first vital step towards catching up to the Europeans and the Chinese on alternative energy. It would help get us off foreign oil. The future of American leadership and credibility worldwide on the issue of global heating is at stake.

And yet the whole ten-year enterprise of Cape Wind could potentially be set back, and possibly suffer its final blow, from this lawsuit. However, there will not be any tidelands to support these species of

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116 Id. at 25.
119 See Complaint, supra note 115, at 1.
121 Id.
birds if we do not license Cape Wind and other renewable energy projects on a vast scale, and with a palpable sense of urgency. We environmental lawyers have perfected the art of slowing down, burdening, and questioning developers to death. The environmental movement can say “no” like nobody’s business. It was a great strategy for fighting the bad guys. But it is now presenting one of the biggest threats to the good guys, and to our environment. We now need to learn how to say “yes.”

Sure, some renewable energy projects have been proposed for the wrong places. But let us be clear that, given the climate crisis, the wrong places are very few and far between. I yield to no one in my love for natural places, intact ecosystems, and wildlife. But like the Massachusetts tidelands, there will be no natural places, no intact ecosystems, and no wildlife, or not very many of those things anyway, if we do not rise to the challenge of global heating.

The tools we developed over the past half century to battle polluters and land wreckers are now being used against the environment.

This is a call to arms. Do you want a career saving Mother Earth? You got it. Go work for the renewable energy industry. You can be their in-house counsel. Or your law firm can help them fight the legal challenges from the NIMBYists, the parochial interests, the narrow-minded, me-first view-shed protectors, the zoning laws, the mind-numbing array of environmental permit challenges, the artificial turfers, the fossil-fuel-funded front groups, and the sincere-but-misguided conservationists. You will make a darn good living. And you will be doing God’s work. Go for it. This is your generation’s challenge. This is your time. This is your call to arms.
DONOVAN v. PHILIP MORRIS USA, INC.: THE BEST APPROACH TO SATISFYING THE INJURY REQUIREMENT IN MEDICAL MONITORING CLAIMS

PHILIP DESAI*

Abstract: Medical monitoring claims seek money damages for the costs of medical testing required after toxic exposure. However, victims of toxic exposure often face challenges proving medical monitoring claims. Many courts require plaintiffs prove they have a present physical injury, and victims usually do not have any disease or illness attributable to the toxic exposure when they bring medical monitoring claims. This Note argues that while a present physical injury should be required, a plaintiff that demonstrates subcellular changes indicating toxic exposure and an increased risk of developing a disease sufficiently satisfies the present physical injury requirement. The best standard for addressing a medical monitoring claim was outlined in Donovan v. Philip Morris USA, Inc., a recent decision by the Supreme Judicial Court of Massachusetts.

Introduction

Toxic torts involve harm from exposure to a hazardous substance.1 Victims have brought toxic tort claims as a result of exposure to tobacco products, asbestos, Agent Orange, and other hazardous substances.2 Toxic tort victims have difficulty proving causation and injury in tort claims because injuries in toxic torts frequently do not manifest until years after exposure.3 In the interim, a victim of toxic exposure may be advised by a physician to undergo medical monitoring.4 Toxic tort victims have attempted to recover the cost of medical monitoring from the party responsible for the exposure.5 However, some courts

2 Id.
4 See id. at 35 (introducing a hypothetical factual scenario in which a claim for medical monitoring may arise).
5 See id. at 38–39; Pizzirusso, supra note 1, at 203.
have declined to award damages for medical monitoring when plaintiffs are unable to show a present physical injury, forcing innocent victims of toxic exposure to pay for their own medical costs while waiting for symptoms of a disease to develop.\(^6\)

Courts have split on the issue of whether medical monitoring claims are valid in the absence of a present physical injury.\(^7\) Opponents argue that a present physical injury is necessary to distinguish between legitimate and frivolous claims, and that allowing claims without such injury is an unnecessary departure from traditional notions of injury.\(^8\) Supporters of medical monitoring claims in the absence of a present physical injury argue that it is consistent with tort principles to allow an innocent plaintiff to recover for the costs of medical monitoring from a negligent defendant.\(^9\) Courts allowing such claims cite the public health interest in diagnosing diseases early, the deterrent effect of awarding medical monitoring costs, the mitigation of the cost and severity of future illnesses, and the inherent fairness of requiring the negligent party to pay for the medical monitoring costs of its victims.\(^10\)

Recently, in *Donovan v. Philip Morris USA, Inc.*, the Supreme Judicial Court of Massachusetts held that plaintiffs could proceed on a claim for medical monitoring in the absence of symptoms of any illness.\(^11\) However, the court formulated a test which required—among other elements—that plaintiffs show that the exposure caused, at a minimum, subcellular changes that increased the risk of disease.\(^12\) The court explained that this test addresses concerns of false claims.\(^13\)

The Massachusetts approach presents the best standard for adjudicating medical monitoring claims.\(^14\) The plaintiff should be required to

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\(^6\) See, e.g., Metro-N. Commuter R.R. v. Buckley, 521 U.S. 424, 438–44 (1997) (declining to award medical monitoring damages under the Federal Employers’ Liability Act to a plaintiff who did not have symptoms of any disease); Henry v. Dow Chem. Co., 701 N.W.2d 684, 688 (Mich. 2005) (holding that a plaintiff bringing a claim for medical monitoring without establishing any present physical injury has failed to state a valid negligence claim); Lowe v. Philip Morris USA, Inc., 183 P.3d 181, 186 (Or. 2008) (holding that “the cost of medical monitoring . . . is not sufficient to give rise to a negligence claim” where the plaintiff has not alleged any physical harm).


\(^8\) See infra Part II.A.

\(^9\) See infra Part II.B.


\(^11\) 914 N.E.2d 891, 901–02 (Mass. 2009).

\(^12\) Id. at 902.

\(^13\) Id. at 901.

\(^14\) See infra Part III.B.
prove a present physical injury.\textsuperscript{15} However, subcellular changes that establish exposure and an increased risk of disease necessitating medical monitoring should satisfy the physical injury requirement, even if such changes are not symptoms of any disease.\textsuperscript{16} The Donovan standard also requires a plaintiff to show that defendant’s negligence caused her exposure, effective medical tests exist for the relevant disease, such tests followed by early diagnosis and treatment would significantly decrease the potential severity of disease, and such tests are reasonably necessary.\textsuperscript{17} This standard is fair to both plaintiffs and defendants.\textsuperscript{18} Furthermore, the standard is flexible enough to account for any future medical developments that provide more efficient methods for establishing exposure and causation.\textsuperscript{19}

This Note argues that other courts should follow the Massachusetts approach by holding that plaintiffs who can establish subcellular changes satisfy the injury requirement for medical monitoring claims.\textsuperscript{20} Part I introduces the difficulties inherent in toxic tort claims and outlines some novel claims brought by plaintiffs.\textsuperscript{21} Part II examines the legal and policy arguments for and against medical monitoring claims absent physical injury, as explained by courts and commentators.\textsuperscript{22} Part III argues that plaintiffs who can show at least subcellular changes as a result of toxic exposure have satisfied the injury requirement, and concludes that the Donovan test is the best model for adjudicating medical monitoring claims.\textsuperscript{23}

**I. Toxic Torts**

Tort law seeks to compensate people who are injured by the conduct of another.\textsuperscript{24} In order to bring a successful tort claim for negligence, the plaintiff must prove that the defendant owed a duty to the victim, that the defendant’s conduct breached that duty, and that the

\textsuperscript{15} See infra Part III.A.

\textsuperscript{16} See id.

\textsuperscript{17} See Donovan, 914 N.E.2d at 902.

\textsuperscript{18} See infra Part III.B.2–3.

\textsuperscript{19} See infra Part III.B.2.

\textsuperscript{20} See infra Part III.

\textsuperscript{21} See infra Part I.

\textsuperscript{22} See infra Part II.

\textsuperscript{23} See infra Part III.

\textsuperscript{24} W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 1, at 6 (5th ed. 1984).
defendant’s conduct caused an actual injury to the plaintiff.\(^\text{25}\) The four elements for a successful tort claim are known as duty, breach, causation, and actual loss or damage.\(^\text{26}\) Causation and actual loss—i injury—are two elements that create obstacles for toxic tort victims.\(^\text{27}\) Tort law is not concerned with negligent acts “where no actual loss has occurred.”\(^\text{28}\) In other words, not all injuries meet the requisite level of harm to be actionable under tort law.\(^\text{29}\) Toxic torts are a specific type of tort, involving harm from exposure to a hazardous substance.\(^\text{30}\) Examples of toxic tort cases include claims against tobacco companies for causing lung cancer and claims brought by individuals exposed to asbestos.\(^\text{31}\)

**A. Difficulties in Toxic Torts: Establishing Causation and Injury**

Toxic tort victims often face obstacles in proving injury because victims of exposure frequently do not manifest any symptoms of physical injury until months or years after the exposure.\(^\text{32}\) Even if a victim of a toxic exposure experiences physical symptoms such as general malaise shortly after exposure, the victim may have an increased risk of cancer or other medical conditions and those symptoms will not manifest until months or years later.\(^\text{33}\) Furthermore, the possible effects of exposure to some hazardous substances are often unknown.\(^\text{34}\) Thus, establishing injury after exposure becomes problematic for toxic tort victims.\(^\text{35}\)

Victims also encounter problems with causation when attempting to prove that the disease is attributable to exposure that occurred years ago and not to some intervening cause.\(^\text{36}\) The loss of evidence during the years between exposure and illness adds to the difficulty of proving

\(^{25}\) Id. § 30, at 164–65. In addition to these requirements, plaintiffs may have to meet certain standing requirements. See Lujan v. Defenders of Wildlife, 504 U.S. 555, 560–61 (1992). For purposes of this Note, it is sufficient to identify that courts may not allow plaintiffs to proceed with a claim if the relief sought would not redress their injury. See id.

\(^{26}\) Keeton et al., supra note 24, § 30, at 164–65.

\(^{27}\) Czmus, supra note 3, at 35.

\(^{28}\) Keeton et al., supra note 24, § 30, at 165.


\(^{30}\) Pizzirusso, supra note 1, at 185.

\(^{31}\) Id.

\(^{32}\) See Czmus, supra note 3, at 35–36.

\(^{33}\) Id.

\(^{34}\) Id. at 37.

\(^{35}\) Id. at 35.

causation. These problems arise in part because the nature of toxic exposure makes it difficult for the victim to determine the exact number and concentration of the toxins as well as the duration of exposure.

Causation in the toxic tort setting has two elements. First, a plaintiff must establish general causation by proving that the toxic substance is capable of producing the harm that plaintiff has suffered. Second, a plaintiff needs to establish specific causation by proving that toxic exposure did in fact cause the plaintiff’s harm. General causation can be established by epidemiological studies that examine the association between exposure to a toxic substance and disease among a sample population. However, most toxic substances have not been thoroughly tested. Adding to the difficulty in proving general causation, many courts do not allow plaintiffs to use studies that relate a toxin to a specific disease to prove that the toxin can cause a related disease. Similarly, courts have often precluded plaintiffs from using evidence that relates a specific toxin to a disease to prove that a chemically related toxin can cause the same disease. Since general causation is usually a prerequisite to establishing individual causation, proving that a particular toxic substance is capable of causing the plaintiff’s harm is critical.

After establishing general causation, a plaintiff must establish specific causation—usually through expert testimony of a physician—by proving that the exposure did in fact cause the plaintiff’s injury. However, proving specific causation is still very difficult, and the admissibility of such expert testimony is not universally accepted. Even after establishing general causation, a plaintiff will run into difficulties establishing specific causation because “the complex etiology of many diseases creates the possibility that any of a variety of factors could have caused the

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37 Id. at 548.
38 Czmus, supra note 3, at 37.
41 Marchant, supra note 39, at 330; Pierce & Sexton, supra note 40, at 34.
42 Pierce & Sexton, supra note 40, at 35.
43 See Marchant, supra note 39, at 331.
44 Id.
45 Id.
46 See Pierce & Sexton, supra note 40, at 35.
47 See id. at 35–36.
48 See id. at 36 n.19.
plaintiff’s injury” and that the disease was not necessarily caused by the exposure.49

There is a potential alternative method to prove general and specific causation in toxic torts.50 A field of science called toxicogenomics seeks to study “the cell-wide changes in gene expression following exposure to toxins.”51 The techniques used in toxicogenomics aim to provide information about molecular changes that result from toxic exposure.52 Since altered gene expression can occur instantaneously upon exposure, toxicogenomic data has the potential to provide much more useful evidence of exposure than the traditionally relied-upon evidence of clinical symptoms.53 Toxic substances can be categorized according to the physiological response—gene expression changes—that they produce.54 Doctors and lawyers could then simply look at an individual’s gene expression to confirm whether the individual was exposed to a certain toxic substance.55 However, “toxicogenomics is a relatively new [field of] science,”56 and there are still some uncertainties in toxicogenomic data.57 One commentator has noted that while “[toxicogenomic data] could eventually serve as evidence to either establish or rebut the claim that exposure to a particular toxin caused the specific injury . . . the admissibility of toxicogenomic data in toxic tort litigation still is an open question.”58

The difficulties inherent in toxic tort litigation for victims of exposure have caused some to argue that “traditional tort principles inade-

49 See id. at 36.
50 See generally Marchant, supra note 39, at 331 (describing the use of toxicogenomic data to prove general and specific causation).
51 See id. at 329.
52 See id.
53 Id.
54 Id.
55 Id.
56 See Pierce & Sexton, supra note 40, at 37 n.20.
57 See Marchant, supra note 39, at 330 (describing difficulties in toxicogenomics, including: quality control issues, false positives, and differentiating between adaptive responses in cells that have no toxicological significance and responses that actually represent disease progression).
58 See Pierce & Sexton, supra note 40, at 56. This Note introduces the concept of toxicogenomic data only to support the claim that defining injury to include subcellular changes that indicate an increased risk of disease is an acceptable element of a standard for medical monitoring claims. Indeed, one commentator has noted that toxicogenomic data “could help many plaintiffs trigger recovery, by demonstrating both an existing ‘injury’ and a sufficient increase in risk” and that the field “has the potential to greatly expand the number of potential medical monitoring claims.” Marchant, supra note 39, at 332.
quately address the issues in toxic tort litigation.” Consequently, courts have recognized novel claims in the toxic tort setting to address problems encountered by victims of toxic exposure.

B. Novel Theories in Toxic Torts to Address Shortcomings

Three distinct theories of tort recovery have emerged as a solution to some of the difficulties faced by victims of toxic torts. In the 1980s, courts began to accept claims for increased risk of illness, fear of disease or emotional distress, and medical monitoring resulting from toxic torts. All three of these claims depart from traditional notions of actionable harms and what the common law of tort has required to show injury.

1. Enhanced Risk of Illness

Claims for enhanced risk do not involve any type of present physical injury, and plaintiffs seek damages based on the fact that exposure has significantly increased their risk of developing a serious disease. While some courts may accept that enhanced risk of illness is an injury, the enhanced risk theory is the least accepted of the three novel theories advanced by toxic tort victims because there is no common law basis for such a recovery. One explanation for why the common law does not treat enhanced risk as a physical harm is that the duty of care is generally to avoid causing the ultimate harm, and not a duty to avoid engaging in conduct that will increase risk of causing the ultimate harm. For courts that permit such claims, plaintiffs have had difficulty succeeding because courts will often require plaintiffs to prove, using

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59 Czmus, supra note 3, at 35.
60 Ann Taylor, Comment, Public Health Funds: The Next Step in the Evolution of Tort Law, 21 B.C. ENVTL. AFF. L. REV. 753, 754 (1994). However, some have argued that even these novel claims are inadequate to compensate victims of toxic torts. See Pizzirusso, supra note 1, at 206.
61 Pizzirusso, supra note 1, at 197.
62 Id.
63 See Keeton et al., supra note 24, § 30, at 165 (stating that “[t]he threat of future harm, not yet realized, is not enough” in a negligence action); Taylor, supra note 60, at 754.
66 See Pizzirusso, supra note 1, at 200, 202 (stating that increased risk claims are less accepted than claims for emotional distress and that medical monitoring claims are the most accepted by the courts).
67 Goldberg & Zipursky, supra note 29, at 1652.
expert testimony, that they are more likely than not to develop the illness—a standard that is very difficult to meet.  

2. Emotional Distress

Emotional distress, or “fear of,” claims in the toxic tort context allege a present injury in the form of mental anguish from the fear of developing a disease as a consequence of exposure to a toxic substance. Claims for fear of developing a disease have been more accepted by courts than enhanced risk claims because emotional distress claims are based upon traditional common law doctrines. Many courts require plaintiffs bringing emotional distress claims to show an accompanying physical injury or prove an actual increase in the risk of developing a disease. This helps courts to distinguish between legitimate and false claims. Some courts have ruled that some sort of physical or subcellular changes, which are not traditional physical injuries themselves, may be sufficient to support a claim for emotional distress.

3. Medical Monitoring

While medical monitoring claims involve enhanced risk, the claim itself does not seek damages to remedy that risk. The claim is that the present injury is the need to undergo costly medical diagnostic tests that a medical doctor has deemed to be advisable or necessary as a result of wrongful exposure to some toxic substance caused by the defendant. The remedy for such a claim is money damages equivalent to the cost of medical monitoring. Medical monitoring is generally de-
fined by medical professionals as “a form of surveillance based on repetitive use of the same test . . . to detect a specified change in the patient indicating a . . . need for treatment or a change in his treatment.” The plaintiff usually does not have to quantify any specific level of enhanced risk or even show that a future illness is likely to occur. The exact elements of a medical monitoring claim vary by jurisdiction. Claims for medical monitoring are often brought as class actions following a mass exposure.

II. Medical Monitoring

Courts in different jurisdictions have reached opposite conclusions in cases involving medical monitoring claims without a present physical injury. In 1984, the D.C. Circuit was the first court to allow a claim for medical monitoring absent physical injury in *Friends for All Children, Inc. v. Lockheed Aircraft Corp.* The New Jersey Supreme Court soon followed suit and allowed plaintiffs to recover medical monitoring costs in *Ayers v. Township of Jackson.* As more jurisdictions addressed the validity of medical monitoring claims absent a showing of a present physical injury, there was a general trend to follow the Ayers court. California, Pennsylvania, and Utah were among the states to recognize medical monitoring claims absent proof of physical injury. Then, in 1997, the United States Supreme Court addressed the issue for the first time in *Metro-North Commuter Railroad Co. v. Buckley*, and rejected a claim for medical monitoring without physical injury under the Federal Employers’ Liability Act. Thereafter, a number of states, including Michigan,

77 Victor E. Schwartz et al., *Medical Monitoring: The Right Way and the Wrong Way*, 70 Mo. L. Rev. 349, 351 (2005). Note that some commentators have argued that courts and medical professionals have differing views on medical monitoring programs. See infra Part II.A.

78 *Ayers v. Twp. of Jackson*, 525 A.2d 287, 309 (N.J. 1987) (rejecting Appellate Division’s conclusion that a claim for medical monitoring is dependent on the risk of injury being quantified and probable); Czmus, *supra* note 3, at 36.


82 See 746 F.2d 816, 826 (D.C. Cir. 1984); Zarov et al., *supra* note 81, at 3.

83 See 525 A.2d 287, 312 (N.J. 1987); see also infra notes 144–148 and accompanying text.

84 See Zarov et al., *supra* note 81, at 7 (noting that the trend of allowing medical monitoring claims in the absence of a present physical injury shifted in 1997).

85 Id. at 5–7.

86 521 U.S. 424, 438–44 (1997). Although the case was brought under a federal statute and not common law, it is cited because, for the purposes of this Note, it is generally analogous to medical monitoring claims brought in the toxic tort setting.
Oregon, and Nevada, rejected medical monitoring claims absent proof of physical injury. However, there has not been a completely uniform trend in one direction, as various jurisdictions have reached opposite conclusions pre- and post-*Buckley*, and some jurisdictions have yet to consider the issue. Thus, the law surrounding such claims is currently unsettled. While the issue has principally been considered by courts, one state legislature—Louisiana—enacted legislation banning recovery of medical monitoring damages absent physical harm.

A. Legal Arguments Against Medical Monitoring Claims

Opponents of using medical monitoring as a cause of action argue that tort law appropriately requires a present physical injury, and allowing such claims would unfairly expand tort liability. Traditional common law does not allow for recovery for future harms or purely economic harms absent a present physical injury, and there are important

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87 Zarov et al., *supra* note 81, at 9.
88 Aberson, *supra* note 7, at 1114–17 (listing Arizona, California, Colorado, Connecticut, the District of Columbia, Florida, Illinois, Montana, New Jersey, New York, Ohio, Pennsylvania, Utah, and West Virginia as the jurisdictions allowing medical monitoring claims absent physical injury; Alabama, Delaware, Indiana, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Nebraska, Nevada, North Carolina, South Carolina, Texas, Virginia, and Washington as the states not allowing medical monitoring claims in the absence of a physical injury; and Arkansas, Maryland, Puerto Rico, Tennessee, Alaska, Georgia, Hawaii, Idaho, Iowa, Maine, Massachusetts, Mississippi, New Hampshire, New Mexico, North Dakota, Oklahoma, Oregon, Rhode Island, South Dakota, Vermont, Wisconsin, and Wyoming as states that either have not addressed medical monitoring or have not articulated a test). This list was current as of 2006. See *id*. However, Massachusetts now belongs in either the first category or second category, depending on whether one views subcellular changes as a present physical injury. See Donovan v. Philip Morris USA, Inc., 914 N.E.2d 891, 901–02 (Mass. 2009). Oregon now belongs in the second category. See *Lowe* v. Philip Morris USA, Inc., 183 P.3d 181, 186–87 (Or. 2008).
89 Zarov et al., *supra* note 81, at 2.
90 LA. CIV. CODE ANN. § 2315 (Supp. 2010) (stating “[d]amages do not include costs for future medical treatment, services, surveillance, or procedures of any kind unless such treatment, services, surveillance, or procedures are directly related to a manifest physical or mental injury or disease”).
91 See *Buckley*, 521 U.S. at 442 (stating that plaintiffs bringing claims for medical monitoring absent physical harm would detract judicial resources from plaintiffs with present physical injuries who are more deserving); Henry v. Dow Chem. Co., 701 N.W.2d 684, 690–91 (Mich. 2005) (stating that the present physical injury requirement “serves a number of important ends for the legal system”); Zarov et al., *supra* note 81, at 21–29 (arguing that allowing medical monitoring claims absent physical injury has negative consequences for plaintiffs, the judicial system, and society overall).
legal and policy justifications for this requirement.\textsuperscript{92} Allowing medical monitoring claims without a showing of physical harm causes courts to speculate about the extent to which a plaintiff has a cognizable legal claim and makes it difficult for courts to exclude frivolous suits.\textsuperscript{93} Requiring a present physical injury also sets a clear standard for courts to follow when deciding which plaintiffs have a valid claim.\textsuperscript{94} Further, such a requirement restrains courts from deciding questions more appropriate for a legislative body, such as the amount of exposure required to state a claim, the type of medical evidence needed to support such a claim, and whether exposure to one chemical is more deserving of medical monitoring than another.\textsuperscript{95} Indeed, the common law in many states refuses to recognize stand-alone emotional harms and purely economic damages for these same reasons.\textsuperscript{96} Medical monitoring costs can quickly rise into the million dollar range,\textsuperscript{97} and since plaintiffs do not have to show that a future illness is likely, it is possible that many may never develop a disease.\textsuperscript{98} Critics argue that while deterrence and ensuring public health are important considerations, medical monitoring claims brought in courts are not the appropriate way to deal with the issue, which should instead be left to legislatures to resolve.\textsuperscript{99}

1. The Supreme Court Denies Medical Monitoring Claims Absent Physical Injury: \textit{Metro-North Commuter Railroad Co. v. Buckley}

In \textit{Buckley}, the United States Supreme Court ruled that a plaintiff could not bring a claim for medical monitoring without physical injury

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\textsuperscript{92} See Henry, 701 N.W.2d at 689–92 (stating that Michigan common law does not recognize claims for future injury or purely economic loss and enumerating purposes of a present physical injury requirement).

\textsuperscript{93} Id. at 690–91.

\textsuperscript{94} Id.

\textsuperscript{95} Schwartz et al., \textit{supra} note 77, at 377–78 (arguing that “courts are not fit to answer all the questions arising with the implementation of a medical monitoring system” and that “[s]tate legislatures are better-suited to undertake this analysis than the courts”).

\textsuperscript{96} See Henry, 701 N.W.2d at 690–91; Pizzirusso, \textit{supra} note 1, at 199 (stating that many courts recognizing fear of cancer or emotional distress claims require an actual present injury).

\textsuperscript{97} See Ayers v. Twp. of Jackson, 525 A.2d 287, 297–98 (N.J. 1987) (disagreeing with Appellate Division’s decision to set aside jury verdict of $8,204,500 for medical monitoring costs).

\textsuperscript{98} See Czmus, \textit{supra} note 3, at 36 (stating that many courts that allow medical monitoring claims do not force plaintiffs to show that a future illness is likely to occur).

\textsuperscript{99} See Martin & Martin, \textit{supra} note 79, at 121; Schwartz et al., \textit{supra} note 77, at 374 (“Medical monitoring, if instituted as a cause of action at all, should be instituted by state legislatures, not the courts.”).
under the Federal Employers’ Liability Act. The plaintiff in *Buckley* alleged that he was negligently exposed to asbestos, and sued to recover the cost of future medical checkups. In denying the plaintiff’s claim because he could not show physical harm or symptoms of any disease, the Court reasoned that it is difficult to determine which medical monitoring costs are the result of toxic exposure, as opposed to routine medical monitoring. The Court added that there is usually uncertainty among medical professionals as to which tests are truly necessary and when they should be administered. Furthermore, the Court recognized that modern-day living results in chemical exposure in varying degrees for millions of individuals. Allowing medical monitoring claims absent physical harm, the Court predicted, could cause a “flood” of less important cases” that would detract judicial and medical resources from more deserving plaintiffs with present injuries. The Court also noted that large recoveries in some cases would unnecessarily award plaintiffs who have alternative forms of payment, such as insurance, available to them.


In 2005, the Supreme Court of Michigan held that plaintiffs could not state a claim for medical monitoring absent physical harm in *Henry v. Dow Chemical Co.* Plaintiffs claimed that defendant had negligently exposed them to high levels of a known carcinogen and should pay for plaintiffs’ medical monitoring costs. The court began its analysis by determining the exact nature of the plaintiffs’ medical monitoring claim, and then deciding whether it was cognizable under Michigan law. First, the court considered that plaintiffs were alleging damages in anticipation of future injury and decided that Michigan law does not recognize claims for future injury. Alternatively, the court considered that plaintiffs’ claim was that their present injury is the additional expense of medical monitoring and concluded that this claim also fails.

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101 *Id.* at 427.
102 *Id.* at 441–42.
103 *Id.* at 441.
104 Zarov et al., *supra* note 81, at 1; see *Buckley*, 521 U.S. at 442.
105 *Buckley*, 521 U.S. at 442.
106 *Id.* at 442–43.
108 *Id.*
109 *Id.*
110 *Id.* at 688–89.
because Michigan tort law does not recognize financial losses as “injuries.” In rejecting this view of plaintiffs’ claims, the court made an important distinction between damages and injury. The court noted that plaintiffs demonstrated economic losses that would be considered damages, but that these losses are not themselves considered an injury. The court reasoned that while financial damages in the form of medical monitoring costs may be awarded to plaintiffs who had established a present physical injury, these expenses are not compensable in the absence of a present physical injury and do not substitute for an actual, present injury. Finally, the court reasoned that the only other way to characterize plaintiffs’ claim is that they have alleged a fear of future physical injury, and concluded that a claim characterized in this manner would also fail because Michigan common law only recognizes claims for emotional distress when accompanied with “physical manifestations of that distress.”

3. Oregon Also Holds No Medical Monitoring Without Physical Harm: Lowe v. Philip Morris USA, Inc.

In 2008, the Supreme Court of Oregon followed Michigan by ruling that a claim for medical monitoring absent physical harm does not state a claim for negligence in Lowe v. Philip Morris USA, Inc. Plaintiffs alleged that defendants’ negligent manufacture and sale of cigarettes caused plaintiffs to be at a significantly increased risk of developing lung cancer and that, because of defendants’ negligence, it was reasonable and necessary for plaintiffs to undergo medical monitoring tests. The court observed that Oregon has repeatedly declined to impose liability for negligence when a plaintiff has suffered purely economic loss and no accompanying injury to person or property. The court concluded by noting that although other jurisdictions have allowed medical monitoring, Oregon precedent controls the issue and declined to modify the state’s common law.

111 Id. at 691.
112 Id.
113 Henry, 701 N.W.2d at 691.
114 Id.
115 Id. at 692.
116 See 183 P.3d 181, 186 (Or. 2008).
117 Id. at 183–84.
118 Id. at 186.
119 Id. at 187.
4. Questioning the Benefits of Medical Monitoring

Some commentators have argued that the scientific community’s approach to medical monitoring is inconsistent with the views of courts that allow medical monitoring without requiring evidence of present physical injury.\(^{120}\) According to the medical community, medical monitoring programs are only appropriate when they have the potential to prevent or cure a disease.\(^{121}\) Therefore, a comprehensive cost-benefit analysis should precede every medical monitoring program.\(^{122}\)

Other critics assert that many courts that allow medical monitoring claims overstate the beneficial effects of diagnostic testing.\(^{123}\) These critics argue that many medical monitoring programs are ineffective and fail to detect diseases early in asymptomatic patients.\(^{124}\) Additionally, they argue that some medical monitoring programs frequently result in false positives\(^{125}\) or false negatives,\(^{126}\) and the consequences of each should be accounted for as risks of undergoing medical monitoring.\(^{127}\)

Finally, critics note that early detection of some diseases may fail to improve a patient’s health, and in such cases, the risks of medical monitoring outweigh any potential benefits.\(^{128}\) These critics argue that courts are not in a position to decide which diseases need medical monitoring, nor are they in a position to decide what criteria should be used to determine whether medical monitoring is appropriate in a specific case.\(^{129}\) Critics argue that because courts lack the expertise to address the issues involved in medical monitoring, and because allowing

\(^{120}\) Schwartz et al., supra note 77, at 362 (“[M]edical monitoring is only appropriate where it can be expected to be effective and where its benefits outweigh its costs. A basic objective ‘predictor’ for this result is some contemporary injury or harm. In contrast, [some] courts have ignored this medical and scientific guidance and have instead implemented full-scale medical monitoring awards where the plaintiffs have no present physical injury.”); Zarov et al., supra note 81, at 29 (stating that the medical community has reached a different conclusion than courts with respect to the benefits of medical monitoring).

\(^{121}\) Schwartz et al., supra note 77, at 350–51.

\(^{122}\) Id. at 349.

\(^{123}\) Zarov et al., supra note 81, at 29–34.

\(^{124}\) Id. at 30–31 (citing the failure of medical monitoring to detect nephrotoxicity resulting from lead exposure before observable symptoms).

\(^{125}\) A test result indicating disease when the patient has none. Id. at 31.

\(^{126}\) A test result indicating that the patient is healthy when the patient has a disease. Id. at 32.

\(^{127}\) See id. at 31–32.

\(^{128}\) Id. at 33–34.

\(^{129}\) Schwartz et al., supra note 77, at 377–78.
such claims departs significantly from traditional tort law, if such claims are to be permitted, a legislature should be the responsible body.\textsuperscript{130}

B. Legal Arguments Supporting Medical Monitoring Claims

Supporters of medical monitoring claims absent physical injury argue that these claims are consistent with tort principles because they only require the defendant to pay for medical costs that would otherwise have been unnecessary but for the defendant’s culpable conduct.\textsuperscript{131} These supporters believe that it is consistent with tort principles to shift the burden of medical monitoring costs from the party that has been wrongfully exposed to toxic chemicals to the party that was responsible for that wrongful exposure.\textsuperscript{132}

Courts that support medical monitoring claims have cited four policy considerations.\textsuperscript{133} First, courts have recognized the public health interest in facilitating access to medical testing when it enables early diagnosis and treatment.\textsuperscript{134} Second, awarding medical monitoring costs deters the irresponsible behavior of discharging toxins.\textsuperscript{135} Third, awarding medical monitoring costs has the effect of reducing overall costs by preventing or mitigating future illnesses.\textsuperscript{136} Finally, there is an inherent unfairness in forcing innocent victims of wrongful exposure to pay for medical monitoring expenses when it would be reasonable to shift that burden to the party responsible for the wrongful exposure.\textsuperscript{137}

The first court to allow a medical monitoring claim absent physical harm was the D.C. Circuit Court in \textit{Friends for All Children, Inc., v. Lockheed Aircraft Corp.}.\textsuperscript{138} The case involved an action brought by survivors of a plane crash who had to undergo medical testing for a possible neurological disorder.\textsuperscript{139} In affirming the district court’s order that the defendant fund the diagnostic tests, the D.C. Circuit reasoned that the ruling would serve the purposes of tort law by deterring wrongful con-

\textsuperscript{130} Id. at 382–83.
\textsuperscript{131} See \textit{Friends for All Children, Inc., v. Lockheed Aircraft Corp.}, 746 F.2d 816, 825 (D.C. Cir. 1984) (stating that allowing medical monitoring damages “accords with commonly shared intuitions of normative justice which underlie the common law of tort”).
\textsuperscript{132} See \textit{id}.
\textsuperscript{133} See \textit{Potter v. Firestone Tire & Rubber Co.}, 863 P.2d 795, 824 (Cal. 1993).
\textsuperscript{134} Id.
\textsuperscript{135} Id.
\textsuperscript{136} Id.
\textsuperscript{137} Id.
\textsuperscript{138} 746 F.2d 816 (D.C. Cir. 1984); Schwartz et al., \textit{supra} note 77, at 359.
\textsuperscript{139} \textit{Friends for All Children, Inc.}, 746 F.2d at 818–19.
duct and compensating victims of wrongdoing. The court considered the Restatement (Second) of Torts’ definition of injury, which defines it as “the invasion of any legally protected interest of another.” The court reasoned that an interest in avoiding expensive medical tests is similar to the interest in avoiding a physical injury, and that the defendant clearly invaded this interest with its negligent conduct. Since the defendant’s actions proximately caused the need for diagnostic testing, the court was satisfied with imposing liability on the defendant for the cost of the diagnostic examinations.

In Ayers v. Township of Jackson, the New Jersey Supreme Court also allowed a claim for medical monitoring absent physical harm in a case involving plaintiffs who were exposed to toxic pollutants as a result of defendant’s negligent operation of a landfill. The court was persuaded by both policy and legal considerations. The court noted that recognizing pre-symptom claims for medical monitoring allows tort law to operate in a way so as to deter polluters, while mitigating serious future illnesses and thereby reducing overall costs to both parties. Moreover, the court reasoned, it is inequitable to force a wrongfully exposed individual to pay for his own medical costs when medical monitoring is necessary. The court concluded by holding that medical monitoring claims can be supported without physical harm where the plaintiff proves through reliable expert testimony predicated upon the significance and extent of exposure to chemicals, the toxicity of the chemicals, the seriousness of the diseases for which individuals are at risk, the relative increase in the chance of onset of disease in those exposed, and the value of early diagnosis, that such surveillance to monitor the effect of exposure to toxic chemicals is reasonable and necessary.

The court in In re Paoli Railroad Yard PCB Litigation followed Ayers, and held that Pennsylvania law recognizes a claim for medical monitor-

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140 Id. at 825.
141 Id. at 826 (quoting Restatement (Second) of Torts § 7 (1977)).
142 Id.
143 Id. at 825–26.
145 Id. at 311–12.
146 Id. at 312.
147 Id.
148 Id.
The court defined a claim for medical monitoring as seeking “to recover only the quantifiable costs of periodic medical examinations necessary to detect the onset of physical harm,” and defined the injury in these claims as “the cost of the medical care that will, one hopes, detect that injury.”

The court then outlined four factors to prove a claim for medical monitoring: (1) significant exposure to a proven hazardous substance because of defendant’s negligence; (2) increased risk of developing disease as a proximate result of exposure; (3) increased risk, which makes medical monitoring necessary; and (4) procedures exist to make early detection and treatment beneficial.

In a more recent case, Bower v. Westinghouse Electric Corp., the Supreme Court of Appeals of West Virginia applied a similar test in finding medical monitoring claims absent physical harm cognizable. The court stated that a plaintiff must prove that:

1. he or she has ... been significantly exposed;
2. to a proven hazardous substance;
3. through the tortious conduct of the defendant;
4. as a proximate result of the exposure, plaintiff has suffered an increased risk of contracting a serious latent disease;
5. increased risk makes it reasonably necessary for the plaintiff to undergo periodic diagnostic medical examinations different from what would be prescribed in the absence of the exposure; and
6. monitoring procedures exist that make the early detection of a disease possible.

C. The Massachusetts Approach: the Donovan v. Philip Morris USA, Inc. Test

In October 2009, Massachusetts considered the issue and allowed medical monitoring, but formulated a standard that deviated from other states that have allowed the claim in the absence of present physical injury.

In Donovan v. Philip Morris USA, Inc., the Supreme Judicial

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149 916 F.2d 829, 852 (3d. Cir. 1990).
150 Id. at 850.
151 Id. at 852.
153 Id.
154 Compare Donovan v. Philip Morris USA, Inc., 914 N.E.2d 891, 902 (Mass. 2009) (introducing a standard for medical monitoring claims that requires plaintiffs to show at least subcellular or physiological changes), with Bower, 522 S.E.2d at 432–33 (allowing a medical monitoring claim where plaintiff proves significant exposure to a hazardous substance and
Court of Massachusetts (SJC) held that a cigarette manufacturer may have to pay for the medical monitoring costs of smokers who have not yet developed lung cancer. The United States District Court for the District of Massachusetts had certified the questions regarding state law to the SJC. The plaintiffs were a class of Marlboro cigarette smokers who were at least fifty years old and had smoked the equivalent of twenty pack-years of cigarettes. Among other claims, plaintiffs alleged that Philip Morris negligently designed their cigarettes, and therefore Philip Morris should pay for medical tests for early detection of lung cancer. The tests cost approximately $400 to $500 per year. Plaintiffs contended that Marlboro cigarettes contain “an excessive and unreasonably dangerous quantity of carcinogens,” and that Philip Morris had feasible alternative designs for cigarettes containing a lower amount of carcinogens.

Over the objections of the defendant, the court reasoned that subcellular or physiological changes that are not, in themselves, symptoms of any illness or disease, but are warning signs of a substantial increase in risk of contracting a disease, satisfy the element of injury in a tort action. Recognizing that the plaintiffs’ harm would arguably not have satisfied the injury requirement in traditional tort actions, Justice Spina wrote, “[w]e must adapt to the growing recognition that exposure to toxic substances and radiation may cause substantial injury which should be compensable even if the full effects are not immediately apparent.” The court clarified that as long as there is a subcellular or physiological change, and a substantial increase in risk of harm, plaintiffs do not need to allege any specific level of increased risk to a resulting increased risk of acquiring a disease without showing any physiological changes.

See 914 N.E.2d at 894–95.

Id.

A “pack-year” is the average number of packs of cigarettes smoked each day multiplied by the number of years smoked. Id. at 895 n.6 (defining “pack-year”). Therefore, twenty pack-years could mean smoking a pack a day for twenty years or smoking two packs a day for ten years. See id.

Id.

Id.


Donovan, 914 N.E.2d at 896.

Id. at 901. The terms “subcellular change” and “physiological change” are used interchangeably throughout this Note to refer to a condition that indicates an increased risk of disease as a result of exposure to a toxic substance, but is not, by itself, a symptom of any disease.

Id.
state a claim for medical monitoring.164 Finally, the court explicitly outlined the elements that a plaintiff must prove in order to state a claim for medical monitoring:

(1) The defendant’s negligence (2) caused (3) the plaintiff to become exposed to a hazardous substance that produced, at least, subcellular changes that substantially increased the risk of serious disease, illness, or injury (4) for which an effective medical test for reliable early detection exists, (5) and early detection, combined with prompt and effective treatment, will significantly decrease the risk of death or the severity of the disease, illness or injury, and (6) such diagnostic medical examinations are reasonably (and periodically) necessary, conformably with the standard of care, and (7) the present value of the reasonable cost of such tests and care, as of the date of the filing of the complaint.165

The court implied that this test strikes an appropriate balance by addressing concerns over false claims and permitting legitimately injured parties to recover costs of medical monitoring “without having to overcome insurmountable problems of proof.”166

The court in Donovan recognized that not all claims for medical monitoring in toxic tort cases will involve physiological or subcellular changes.167 Therefore, Justice Spina wrote, “[w]e leave for another day consideration of cases that involve exposure to levels of chemicals or radiation known to cause cancer, for which immediate medical monitoring may be medically necessary although no symptoms or subclinical changes have occurred.”168 In one of the only cases that has discussed Donovan at any length, the Superior Court of Rhode Island granted the defendant’s motion to prohibit testimony regarding medical monitoring because the plaintiff had failed to present any physiological changes and, therefore, medical monitoring damages would be inappropriate.169

The court emphasized that Donovan was limited to cases involving physiological changes.170

164 Id.
165 Id. at 901–02.
166 See id. at 901.
167 Donovan, 914 N.E.2d at 901.
168 Id.
170 Id.
While the SJC is the latest court to recognize a claim for medical monitoring absent physical harm, it is not the first to explicitly define what type of evidence is necessary to establish exposure.\textsuperscript{171} The SJC is also not the first to recognize the value of cellular changes as beneficial scientific evidence.\textsuperscript{172} In 1994, a commentator argued that while “courts would prefer to have easily documentable scientific evidence regarding plaintiffs’ cellular changes, the availability of such scientific evidence is unlikely.”\textsuperscript{173}

Reactions to the Donovan case have been varied, with some claiming that the decision increases potential liability of tobacco companies greatly, and others saying that toxic tort law in Massachusetts has not changed much.\textsuperscript{174} While tens of thousands of people could qualify as plaintiffs and be awarded medical monitoring if the class action against Philip Morris is successful, many of those may have health plans that pay for the diagnostic tests.\textsuperscript{175}

### III. Donovan as a Model for Medical Monitoring Claims

The case law and the arguments outlined above exemplify the legal debate over whether claims for medical monitoring absent physical injury—as traditionally defined—should be allowed. On the one hand, the traditional requirement that plaintiffs establish some present physical harm is justifiable because, in the absence of such a requirement, courts would be forced to speculate about the extent of injury and to engage in arbitrary line-drawing.\textsuperscript{176} Allowing such claims would greatly expand tort liability and unnecessarily burden the courts by assigning them the precarious responsibility of deciding which instances of exposure are worthy of medical monitoring claims—a responsibility better left to legislatures.\textsuperscript{177} On the other hand, plaintiffs should be allowed to

\textsuperscript{171} See Sorrentino v. ASN Roosevelt Ctr., LLC, 579 F. Supp. 2d 387, 390 (E.D.N.Y. 2008) (finding that a plaintiff who can show presence of the toxic substance in his or her body or can establish some physical manifestation of toxic contamination can recover medical monitoring costs).

\textsuperscript{172} See id.; Bryson v. Pillsbury Co., 573 N.W.2d 718, 720–21 (Minn. Ct. App. 1998) (finding that the question of whether subcellular changes constitutes a present injury is an issue for the trier of fact).

\textsuperscript{173} Czizmus, supra note 3, at 54.

\textsuperscript{174} See Ellement, supra note 160, at A11 (quoting one lawyer as stating that the ruling created “a new track of litigation that [tobacco companies] haven’t had to deal with” and another lawyer as stating that the ruling does not “move[] the needle in Massachusetts in ... favor of consumers ... very much.”).

\textsuperscript{175} Id.


\textsuperscript{177} See id. at 695–96; Schwartz et al., supra note 77, at 377–78.
recover medical costs incurred solely as a result of defendants’ negligence, because it is unfair to force innocent victims to pay for their own medical tests.178

The Donovan court set an appropriate standard for courts to apply in assessing claims for medical monitoring, by requiring a plaintiff bringing a medical monitoring claim to show at least subcellular or physiological changes.179 The court recognized that the injury requirement in tort law is satisfied by showing medically observable changes that, while not symptoms of disease, establish exposure and a corresponding increased risk of disease.180 Legal and policy justifications defend this standard.181

A. The Present Physical Injury in Medical Monitoring Claims: Exposure to a Toxic Substance that Has Caused at Least Subcellular Changes

Courts that have rejected medical monitoring claims have framed them as either claims for stand-alone emotional distress, stand-alone economic harm, or as alleging damages in anticipation of future injury.182 These courts have then rejected the claims on the basis that state common law does not recognize these novel theories in the absence of some traditionally defined physical injury.183 The courts can justify following their states’ traditional common law doctrines by arguing that there is generally no duty to avoid causing an increased risk of harm.184 Furthermore, the physical injury requirement is necessary to help distinguish between legitimate and false claims.185

Medical monitoring claims are best framed as requesting relief for the present injury of medical testing as a result of subcellular changes that necessitate medical monitoring.186 The subcellular component of the injury should be viewed as the “physical” harm.187 Such a construction of injury is not a radical departure from tort law; some courts have already stated that the injury requirement is satisfied by showing subcel-

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180 Donovan, 914 N.E. 2d at 901.
181 See discussion infra Parts III.A–B.
182 See Henry, 701 N.W.2d at 688–92; Lowe v. Philip Morris USA, Inc., 183 P.3d 181, 184, 186 (Or. 2008).
183 See Henry, 701 N.W.2d at 692; Lowe, 183 P.3d at 186–87.
184 See Goldberg & Zipursky, supra note 29, at 1652.
185 See Pizzirusso, supra note 1, at 199.
187 See id.
lular changes in claims for emotional distress.\textsuperscript{188} Claims for medical monitoring only seek reimbursement for medical expenses incurred as a result of the defendant’s negligence.\textsuperscript{189} These medical expenses are required because of toxic exposure.\textsuperscript{190} Subcellular or physiological changes indicating an increased risk of harm can establish toxic exposure.\textsuperscript{191} Therefore, subcellular physiological changes are sufficient to satisfy the present physical injury requirement in a claim for medical monitoring.\textsuperscript{192} Indeed, by their very nature, claims for medical monitoring will not involve present physical harm as traditionally conceptualized because the whole aim of medical monitoring is to detect the onset of physical harm.\textsuperscript{193} Hence, the “physical injury” in medical monitoring claims is appropriately viewed as subcellular changes requiring medical monitoring.\textsuperscript{194} However, recognizing that subcellular changes satisfy the present physical injury requirement and framing the claim in this manner is only the first step in analyzing medical monitoring claims.\textsuperscript{195} After addressing the injury requirement, the Donovan court articulated a fair standard to apply to medical monitoring claims.\textsuperscript{196}

B. The Donovan Court Articulated the Best Standard for Medical Monitoring Claims

The court in Donovan framed the medical monitoring claim as damages for medical expenses that were incurred as a result of the defendant’s negligence.\textsuperscript{197} This construction of medical monitoring claims incorporates an understanding of “injury” that recognizes a present physical injury in the absence of symptoms of a known disease.\textsuperscript{198} Thus,

\textsuperscript{188} See, e.g., \textit{In re} Methyl Tertiary Butyl Ether Prods. Liitig., 528 F. Supp. 2d 303, 314–15 (S.D.N.Y. 2007) (finding that testimony regarding subcellular changes to plaintiffs’ DNA raises a genuine issue of material fact as to whether it is a sufficient injury for an emotional distress claim); Anderson v. W.R. Grace & Co., 628 F. Supp. 1219, 1226–27 (D. Mass. 1986) (declining to grant summary judgment on the basis that plaintiffs’ harm is subcellular and therefore not meeting the injury requirement for emotional distress claims); Bryson v. Pillsbury Co., 573 N.W.2d 718, 720–21 (Minn. Ct. App. 1998) (finding that the question of whether subcellular changes in the form of chromosome damage constitutes a present injury is an issue for the trier of fact).
\textsuperscript{189} Bourne, \textit{supra} note 64, at 254; Pizzirusso, \textit{supra} note 1, at 203.
\textsuperscript{190} Bourne, \textit{supra} note 64, at 254; Pizzirusso, \textit{supra} note 1, at 203.
\textsuperscript{191} \textit{See Donovan}, 914 N.E.2d at 901; \textit{supra} notes 51–55 and accompanying text.
\textsuperscript{192} \textit{See Donovan}, 914 N.E.2d at 901.
\textsuperscript{193} \textit{See Schwartz} et al., \textit{supra} note 77, at 351.
\textsuperscript{194} \textit{See Donovan}, 914 N.E.2d at 901; Schwartz et al., \textit{supra} note 77, at 351.
\textsuperscript{195} \textit{See Donovan}, 914 N.E.2d at 901–02; discussion \textit{infra} Part III.B.
\textsuperscript{196} \textit{See Donovan}, 914 N.E.2d at 902.
\textsuperscript{197} \textit{Id.} at 900.
\textsuperscript{198} \textit{Id.} at 901.
the Donovan Court did not follow other courts that set forth a similar standard for medical monitoring in concluding that no present physical injury was required.199 After preliminarily recognizing that the injury requirement is satisfied if a medical monitoring claim demonstrates subcellular or physiological changes that indicate a need for medical testing, the court set forth a fair standard that plaintiffs must meet in order to recover damages.200 The first part of the test requires that the defendant’s negligence caused the plaintiff’s exposure.201 This aspect of the test satisfies the basic requirement of tort law that the plaintiff must prove the defendant breached a duty to the plaintiff and caused the plaintiff harm.202

The second part of the test addresses the injury requirement and requires that the exposure “produced, at least, subcellular changes that substantially increased the risk of serious disease, illness, or injury.”203 The test further requires that an effective medical test for early detection exists, and that early detection and treatment will significantly decrease the risk of death or severity of disease.204 Like other courts that have allowed medical monitoring, Donovan also requires that the diagnostic exams be reasonably necessary.205 According to this standard, “increased risk of future disease” is a necessary component of the reasonably necessary standard, because if the subcellular changes did not result in an increased risk of future disease, medical monitoring would not be reasonably necessary.206 Therefore, the Donovan court appropriately reasoned that no particular quantification of the increase in risk is required—only that the increased risk be significant.207

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199 Compare id. at 901–02, with Ayers v. Twp. of Jackson, 525 A.2d 287, 312–13 (N.J. 1987) (setting forth a standard that does not require proof of physical injury), and Bower v. Westinghouse Elec. Corp., 522 S.E.2d 424, 432 (W. Va. 1999) (allowing a medical monitoring claim where plaintiff does not have to prove any physiological changes or physical injury).  
200 See Donovan, 914 N.E.2d at 901–02.  
201 Id.  
202 See id.; Keeton et al., supra note 24, § 30, at 164–65.  
203 See Donovan, 914 N.E.2d at 902.  
204 Id.  
206 See id.; supra notes 74–78 and accompanying text.  
207 See Donovan, 914 N.E.2d at 901.
1. Establishing at Least Subcellular Change is a Necessary Component of Medical Monitoring Claims

A significant difference between other courts that allowed medical monitoring claims and Donovan is the Donovan Court required the plaintiffs show that the exposure produced at least subcellular changes. This assertion recognizes that showing a present physical harm should be necessary in medical monitoring claims. Requiring at least subcellular changes addresses a central and practical concern of those courts that do not allow medical monitoring claims; it provides a basis for holding that the present physical injury requirement has been satisfied. For example, the Oregon Supreme Court in Lowe faced a complaint almost identical to the one presented before the Massachusetts SJC. In Lowe, if smokers had alleged at least subcellular changes—along with establishing the other elements of the Donovan test—they would have stated a valid claim for medical monitoring under the Massachusetts approach.

The usefulness of subcellular or physiological changes in determining toxic exposure has also been discussed by legal commentators who note the implications of increasingly sophisticated scientific methodology. An example of the usefulness of examining subcellular changes is found in the field of toxicogenomics. While toxicogenomic data may one day be used in toxic tort cases to prove that physiological changes indicate exposure to specific toxic substances, today competent medical testimony can be used to at least establish measurable subcellular changes, which indicate an increase in risk of disease that necessitates medical monitoring.

2. The Donovan Standard for Medical Monitoring Claims Does Not Unfairly Exclude Deserving Plaintiffs

The Donovan standard is carefully balanced: it is sufficiently broad so that it does not unfairly exclude potential deserving plaintiffs, but

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208 Compare id. at 902, with Bower, 522 S.E.2d at 432–33 (outlining a standard that focused on the increased risk of contracting a disease and not requiring plaintiffs to show any type of present physiological change).
209 See discussion supra notes 91–96 and accompanying text.
210 See id.; supra notes 186–194 and accompanying text.
211 See Donovan, 914 N.E.2d at 895; Lowe v. Philip Morris USA, Inc., 183 P.3d 181, 183–84 (Or. 2008).
212 See Donovan, 914 N.E.2d at 895, 901–02; Lowe, 183 P.3d at 183–84.
213 See Marchant, supra note 39, at 329; Pierce & Sexton, supra note 40, at 56.
214 See Marchant, supra note 39, at 329; Pierce & Sexton, supra note 40, at 56.
215 See Donovan, 914 N.E.2d at 901; Pierce & Sexton, supra note 40 at 56.
rejects potentially frivolous claims. Notably, this standard leaves out those plaintiffs who claim to have been exposed to a toxic substance but cannot show a corresponding subcellular or physiological change. The Donovan standard requires subcellular or physiological changes because, in the context of medical monitoring claims, this requirement appropriately replaces the role of the traditional physical harm requirement. The present physical harm requirement is critical because it allows courts to distinguish between legitimate and frivolous claims. Furthermore, the requirement sets a clear standard for courts to follow and restrains courts from having to speculate about the extent of the injury. As the United States Supreme Court noted in Buckley, the realities of modern day living necessarily expose millions of people to various chemicals in varying degrees. Without some showing of present physical harm, millions of people could bring claims merely alleging exposure and increased risk, leaving courts without any justifiable standard to distinguish between deserving and non-deserving plaintiffs. Thus, it is not unfair to exclude plaintiffs who are unable to establish subcellular changes because, in the context of medical monitoring claims, the requirement is analogous to the traditional injury requirement required in all tort actions.

The standard also leaves out plaintiffs who cannot prove that medical testing would be effective in their case. Therefore, if a plaintiff alleges that toxic exposure caused subcellular changes that resulted in an increased risk of disease X, and medical monitoring for disease X either does not exist or would not be effective, then the plaintiff cannot proceed with a claim for medical monitoring. This is a fair result because, in the absence of an effective remedy, the current injury is one

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216 See Donovan, 914 N.E.2d at 902.
217 See id.
218 See id.; supra notes 189–194 and accompanying text.
219 See Pizzirusso, supra note 1, at 199.
222 Buckley, 521 U.S. at 442.
223 See Donovan, 914 N.E.2d at 901; Keeton et al., supra note 24, § 30, at 164–65.
224 See Donovan, 914 N.E.2d at 902.
225 See id.
that would not be redressable. Indeed, other courts that have allowed medical monitoring claims have imposed similar restrictions.

Subcellular changes indicating an increased risk of disease do not state a valid claim for medical monitoring if the plaintiff cannot establish that medical testing is necessary and would be effective. Likewise, mere exposure and increased risk of harm without any accompanying physiological indicators should not be considered a legally cognizable harm. Perhaps one day, toxicogenomic studies will have progressed enough to be used to definitively establish causation in toxic exposure cases. The Donovan test is flexible and fully consistent with any medical advances that could potentially detect subcellular or physiological changes upon exposure to toxic substances. Indeed, medical advances that improve the detection of subcellular or physiological changes that occur as a result of exposure would fairly increase the applicability of the Donovan test to plaintiffs with medical monitoring claims.

3. The Donovan Standard for Medical Monitoring Claims Is Not Unfair to Defendants

The Donovan standard is sufficiently narrow so that it is not unfair to potential defendants. The Donovan standard severely limits the number of plaintiffs who can state a valid claim for medical monitoring damages. With this standard, plaintiffs who merely allege exposure without being able to show the presence of any toxin or physical change in their bodies will not be able to pursue a claim for medical monitoring. In requiring that plaintiffs establish some sort of physiological or subcellular change, the Donovan standard addresses concerns

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226 See Lujan v. Defenders of Wildlife, 504 U.S. 555, 560–61 (1992) (stating that plaintiffs may not be allowed to proceed with a claim if the relief sought would not redress their injury).


228 See Donovan, 914 N.E.2d at 902.

229 See id.; Goldberg & Zipursky, supra note 29, at 1651.

230 See Pierce & Sexton, supra note 40, at 56.

231 See Donovan, 914 N.E.2d at 902.

232 See id. at 901–02.

233 See id. at 902 (describing the elements that a plaintiff must meet before stating a valid claim for medical monitoring).

234 See id.

of false claims cited by courts that reject medical monitoring claims.\textsuperscript{236} The standard allows a court to view subcellular changes as a threshold that solves the line-drawing problems that some courts identify when rejecting medical monitoring claims.\textsuperscript{237} One critique of medical monitoring claims absent physical harm, cited by the \textit{Buckley} Court, was the prediction of a flood of litigation from plaintiffs who have been exposed to varying degrees of chemicals.\textsuperscript{238} It is unclear whether the \textit{Buckley} Court would accept subcellular changes as meeting the criteria of physical injury; nevertheless, the requirement limits the “flood” of . . . cases” to plaintiffs who can demonstrate physiological change.\textsuperscript{239}

The standard further limits the potential pool of plaintiffs by requiring that effective medical tests for the relevant disease exist, that early detection would be useful and effective, and that such tests are reasonably necessary.\textsuperscript{240} Therefore, courts would disallow a medical monitoring claim if plaintiffs cannot show that medical monitoring would be effective or if doctors conclude that the risks of medical monitoring outweigh the benefits.\textsuperscript{241} This standard addresses critics’ concerns about the differing viewpoints of the courts and the scientific community regarding medical monitoring because it requires plaintiffs to show that medical monitoring is acceptable—and reasonably necessary—as determined by the medical community.\textsuperscript{242}

The courts that have not allowed medical monitoring claims have also cited the potentially enormous costs of medical monitoring claims that would be imposed on defendants.\textsuperscript{243} A standard that limits the potential pool of plaintiffs would also limit the potential cost to the defendant.\textsuperscript{244} Furthermore, the potential cost to defendants could be mitigated if plaintiffs’ health insurance covers the cost of the medical tests.\textsuperscript{245}

Finally, it is important to emphasize that in order to recover medical monitoring costs, plaintiffs have to prove that they were exposed as

\textsuperscript{237} See Henry, 701 N.W.2d at 690–91.
\textsuperscript{239} See id.; Donovan, 914 N.E.2d at 902.
\textsuperscript{240} See Donovan, 914 N.E.2d at 902.
\textsuperscript{241} See id.
\textsuperscript{242} See id.; supra notes 120–128 and accompanying text.
\textsuperscript{243} Buckley, 521 U.S. at 442.
\textsuperscript{244} See id.
\textsuperscript{245} See Ellement, supra note 160, at A11.
a result of defendants’ negligence. It is fair to require negligent defendants to pay for medical costs incurred as a result of their negligence. Indeed, courts have cited the inherent unfairness in forcing innocent victims of wrongful exposure to pay for their medical expenses as a policy reason for allowing medical monitoring claims.

**Conclusion**

Victims of toxic exposure often have difficulty in establishing causation and injury in tort claims. Medical monitoring is a novel claim for recovery in the toxic tort setting. A medical monitoring claim is for reimbursement of medical diagnostic testing that plaintiffs needed as a result of wrongful exposure to a toxic substance. Courts have been split on whether medical monitoring claims are cognizable in the absence of present physical harm. In 2009, the Supreme Judicial Court of Massachusetts set forth the best standard for addressing medical monitoring claims.

The court allowed plaintiffs that could prove at least subcellular changes to proceed with a claim for medical monitoring, even if no symptoms of any disease were present. In doing so, the court held that the injury requirement is met in a medical monitoring claim when medically observable changes establish exposure and a corresponding increase in risk of disease. Although not within the field of traditionally recognized injuries, subcellular or physiological changes as a result of toxic exposure that necessitate medical monitoring are appropriately viewed as an injury.

This standard is better for plaintiffs who cannot show objective symptoms of any disease because it modifies the traditional physical harm requirement in the context of medical monitoring claims. While it leaves out plaintiffs who cannot show at least some physiolog-
cal change, this is a fair result because it sets a clear standard for courts to follow and fulfills the functions of the traditional injury requirement in torts. The Donovan test is fair to defendants because it greatly limits the pool of potential plaintiffs that can bring medical monitoring claims. Furthermore, the standard requires that plaintiffs prove that defendants were negligent. The subcellular change requirement addresses concerns of false claims and further limits the pool of plaintiffs by requiring that early detection be useful for the particular disease which the plaintiffs are at an increased risk of developing.

Therefore, in the absence of legislative action, courts should adjudicate medical monitoring claims according to the Donovan standard. Perhaps medical advances in the near future will solve some of the causation difficulties inherent in toxic torts; but for now, the Donovan standard best balances the rights of plaintiffs and defendants, and grants at least the costs of medical monitoring to plaintiffs with subcellular changes.

See Donovan, 914 N.E.2d at 902.
See id.
See id. at 901–02.
See discussion supra Part III.B.
See discussion supra Part III.B.
THE POWER OF ONE: CITIZEN SUITS IN THE FIGHT AGAINST GLOBAL WARMING

Katherine A. Guarino*

Abstract: Plaintiffs seeking compensation from the effects of global warming have encountered challenging legal barriers. Until 2009, courts consistently dismissed global warming suits as political questions or for lack of standing. In Comer v. Murphy Oil USA, property owners along the Mississippi Gulf coast sued oil and energy companies in nuisance for emitting greenhouse gases that contributed to global warming and added to the intensity of Hurricane Katrina, which damaged their property. In 2009, the Fifth Circuit surprisingly held that a class of private citizens could satisfy both standing and the political question doctrine in a global warming suit. However, after winding through a complex procedural pathway, that decision was ultimately vacated the following year following the denial of a writ of mandamus by the Supreme Court. Comer’s companion case in the Second Circuit, American Electric Power, Co., has been granted certiorari by the Supreme Court. That case should resolve the primary issues from Comer, namely standing and justiciability. It also marks the first opportunity for the Supreme Court to rule on the legitimacy of public nuisance claims against greenhouse-gas-emitting companies for injury from global warming. It is likely that the plaintiffs will be unable to prove causation, even if they succeed on the contentious issues of standing and justiciability.

Introduction

In 2005, the spectre of global warming descended incarnate upon the city of New Orleans.1 Beneath the wrath of a category four hurricane, the end of the world came.2 Death and destruction took hold as

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* Executive Editor, Boston College Environmental Affairs Law Review, 2010–11.
1 See Joseph B. Treaster & N.R. Kleinfeld, New Orleans Is Now Off Limits; Pentagon Joins in Relief Effort, N.Y. Times, Aug. 31, 2005, at A1 (“Offering up howling winds of as much as 145 miles an hour, the hurricane hit land in eastern Louisiana just after 6 a.m. Monday as a Category 4 storm, the second-highest rating, qualifying it as one of the strongest to strike the United States.”).
floodwaters surged, converting the city into a veritable waterworld. The Pentagon sent in the Navy to fight the invisible enemy, but even military force was no match for the devastation caused by 145 mile-per-hour winds, two-story-high waves, and breached levies. The view from above captured the true extent of the damage: a “community of houseboats,” fires lighting up deserted buildings, highways rearranged into awkward formations, bridges broken in half, buildings with 600 windows blown out, and bodies floating down canal streets. “It looks like Hiroshima,” a local governor said. This is the face of global warming. In one merciless display, the United States witnessed all of the most terrifying consequences of a warmer world.

According to the Intergovernmental Panel on Climate Change (IPCC), warming of our climate is “unequivocal.” Evidence of such warming is largely observational and includes increases in average global air and water temperatures, melting of snow and ice, and rising sea levels. Commonly known as “global warming” or “climate change,” this phenomenon has escalated within the last fifteen years. The IPCC cites an increase in greenhouse gases (GHGs) in the atmosphere as the primary cause of global warming. GHGs are atmospheric gases that absorb and give off radiation emitted by the Earth’s surface,

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4 Treaster & Kleinfeld, supra note 1.
5 Id.
6 Id.
8 See Real Media Videorecording: From Science to Time to Vanity Fair: Global Warming Becomes a Hot Topic (The Center for Advanced Study, University of Illinois at Urbana-Champaign Feb. 8, 2007), available at http://willmedia.will.uiuc.edu/ramgen/CAS/cas2007-02-08.rv (identifying Hurricane Katrina as the single event that spurred the mainstream climate change movement).
9 IPCC SUMMARY, supra note 7, at 2.
10 See id. at 2–3, 3 fig. SPM.1.
11 See id. at 2 (“Eleven of the last twelve years (1995–2006) rank among the twelve warmest years in the instrumental record of global surface temperature (since 1850).”).
12 See id. at 5.
the atmosphere, and clouds. Their ability to trap heat within the Earth’s surface is called the “greenhouse effect.” An increase in GHGs enhances the greenhouse effect, causing the Earth’s temperature to increase. Notably, the past decade replaced the 1990s as the warmest on record. The IPCC is highly confident that the cumulative effect of human industrial activities since 1750 has been global warming.

In September of 2005, a group of Hurricane Katrina victims seized upon the link between greenhouse gas emissions, global warming, and increased storm intensity, and sought revenge. In a class action suit that sought to change the course of environmental law, these plaintiffs sued 150 energy and oil companies in common law tort for emitting greenhouse gases that contributed to global warming, and in turn, increased the ferocity of Hurricane Katrina, damaging their property. The case, Comer v. Murphy Oil USA, gained immediate attention as the first to solicit money damages under a tort cause of action for storm damage attributed to global warming.

The focus of this Note is on the obstacles to global warming suits, most of which the Comer v. Murphy Oil plaintiffs overcame before the Fifth Circuit panel, and the potential for success of this type of global warming case before the Supreme Court. Part I introduces the two primary barriers to global warming suits, the political question doctrine, and standing, and demonstrates how these barriers have been overturned in some appellate courts. Part II explains how global warming plaintiffs have used common law tort causes of action to bol-

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14 Id. at 81–82.
15 Id. The main GHGs are water vapor (H2O), carbon dioxide (CO2), nitrous oxide (N2O), methane (CH4), and ozone (O3). Id. at 82.
17 See IPCC Summary, supra note 7, at 5.
19 Id. at 859.
21 See Comer v. Murphy Oil USA, 585 F.3d 855, vacated, 607 F.3d 1049 (5th Cir. 2011) (holding that the Court of Appeals lacked a quorum due to recusal of judges and that the panel opinion had properly been vacated).
22 See infra Part I.
ster the validity of their claims. Part III analyzes *Comer v. Murphy Oil USA*, the case that knocked down more barriers than had any previous global warming case, but ultimately succumbed to a procedural technicality. Finally, Part IV addresses the potential problems a global warming case of this type will encounter with proving the issue of causation before the Supreme Court.

I. The Justiciability and Standing Barriers

Since their inception, global warming suits have faced challenging legal barriers. The most significant barriers have been justiciability of a global warming claim and standing to sue for a crisis affecting millions.

A. The Political Question Doctrine

One of the most challenging obstacles facing global warming plaintiffs is justiciability, or the political question doctrine. Under Article III of the Constitution, the federal courts only have jurisdiction over questions, issues, cases, and controversies that are “justiciable.” A matter is “justiciable when it is constitutionally capable of being decided by a federal court.” Conversely, “nonjusticiability” or a “political question” exists when a matter has been committed exclusively to the political branches by the Constitution or by federal law. In that case, a federal court would not have jurisdiction over the matter. When a matter is justiciable, however, a federal court has an obligation to exer-

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23 See infra Part II.
24 See infra Part III.
25 See infra Part IV.
27 See Am. Bar Ass’n, supra note 26, at 183; Drabick, supra note 26, at 507, 510; Merrill, supra note 26, at 294–99, 319–28.
29 U.S. Const. art. III, § 2; Comer, 585 F.3d at 869.
30 Comer v. Murphy Oil USA, 585 F.3d 855, 869 (5th Cir. 2009).
31 Id.
32 Id.
cise jurisdiction over it.\textsuperscript{33} The policy behind this duty is to prevent a court from dismissing an action because it has political implications.\textsuperscript{34} In practice, dismissal for nonjusticiability has been rare; since \textit{Baker v. Carr} in 1962, discussed below, the Supreme Court has only dismissed two cases as political questions.\textsuperscript{35} The Court has yet to rule explicitly on the justiciability of a global warming claim.\textsuperscript{36}

1. The \textit{Baker} Factors

Until the 1960s, determining which matters were better left to other branches of the government was a confusing and disorderly task.\textsuperscript{37} \textit{Baker v. Carr} rescued the doctrine of justiciability from irregular application by proposing a list of six “formulations” that describe a political question:\textsuperscript{38}

\begin{itemize}
\item[(1)] a textually demonstrable constitutional commitment of the issue to a coordinate political department; or
\item[(2)] a lack of judicially discoverable and manageable standards for resolving it; or
\item[(3)] the impossibility of deciding without an initial policy determination of a kind clearly for nonjudicial discretion; or
\item[(4)] the impossibility of a court’s undertaking independent resolution without expressing lack of the respect due coordinate branches of government; or
\item[(5)] an unusual need for unquestioning adherence to a political decision already made; or
\item[(6)] the potentiality of embarrassment from multifarious pronouncements by various departments on one question.\textsuperscript{39}
\end{itemize}

\textsuperscript{33} \textit{Id.} at 874–75.

\textsuperscript{34} \textit{Japan Whaling Ass’n v. Am. Cetacean Soc’y}, 478 U.S. 221, 230 (1986) (“[U]nder the Constitution, one of the Judiciary’s characteristic roles is to interpret statutes, and we cannot shirk this responsibility merely because our decision may have significant political overtones.”).


\textsuperscript{36} See generally Massachusetts v. EPA, 549 U.S. 497 (2007) (global warming case that did not raise justiciability as an issue).

\textsuperscript{37} \textit{Baker v. Carr}, 369 U.S. 186, 210 (1962) (recognizing that the attributes of the political question doctrine “in various settings, diverge, combine, appear, and disappear in seeming disorderliness”).

\textsuperscript{38} \textit{Id.} at 217 (establishing six justiciability factors).

\textsuperscript{39} \textit{Id.}
The *Baker* Court ensured that these factors would not be used to block legitimate cases from federal court by setting a high standard for non-justiciability. The effect has been rare assertion of the political question doctrine in most cases, including common law tort claims. However, the political question doctrine has presented a challenge for plaintiffs in the nascent area of global warming.

The Supreme Court later added a threshold requirement to the *Baker* analysis: “whether and to what extent the issue is textually committed” to a political branch. In *Nixon v. United States*, the Court set out a two-pronged test for determining whether this threshold was met: (1) identification of the issues that the plaintiff’s claims pose and (2) interpreting the constitutional text in question to determine the extent to which the issues are “textually committed” to a political branch.

2. Global Warming Claims are Held Justiciable

The first global warming case to apply the *Baker* factors was *Connecticut v. American Electric Power Co.* (*AEP*). When *AEP* was brought before the District Court for the Southern District of New York, the court conservatively chose to view the global warming issue as too complex and too entwined with politics to be justiciable. However, by the time the case reached the Second Circuit on appeal, the first global warming case, *Massachusetts v. EPA*, had been handed down by the Su-

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40 *Connecticut v. Am. Elec. Power Co.*, 582 F.3d 309, 321 (2d Cir. 2009), *cert. granted*, 79 U.S.L.W. 3342 (U.S. Dec. 6, 2010) (No. 10–174) (“Unless one of these formulations is inextricable from the case at bar, there should be no dismissal for nonjusticiability on the ground of a political question’s presence.” (quoting *Baker*, 369 U.S. at 217)).


42 *Comer v. Murphy Oil USA*, 585 F.3d 855, 873 (5th Cir. 2009).


44 *Nixon*, 506 U.S. at 228.

45 See id.; see also *Comer*, 585 F.3d at 875.


47 *Am. Elec. Power Co.*, 406 F. Supp. 2d at 271 n.6, 273–74 (“[B]ecause the issue of Plaintiffs’ standing is so intertwined with the merits and because the federal courts lack jurisdiction over this patently political question, I do not address the question of Plaintiffs’ standing.”); see also *Native Vill. of Kivalina v. ExxonMobil Corp.*, 663 F. Supp. 2d 863 (N.D. Cal. 2009) (holding that Inupiat Eskimos’ public nuisance claims against energy companies for their contribution to global warming, which caused erosion on plaintiffs’ property, constituted a nonjusticiable political question).
preme Court.\textsuperscript{48} Although that case did not explicitly address the justiciability issue, it stands for the principle that federal courts have jurisdiction to hear cases alleging global warming as an injury.\textsuperscript{49} By upholding a state’s standing to sue for injury deriving from the EPA’s failure to regulate greenhouse gas emissions, the Supreme Court had endorsed, for the first time, global warming suits in general.\textsuperscript{50}

In the wake of \textit{Massachusetts v. EPA}’s recognition of global warming as an adequate injury for standing—and in effect, nonjusticiability—\textsuperscript{51} the Second Circuit reversed.\textsuperscript{52} Applying the \textit{Baker} factors, the Second Circuit in \textit{AEP} rejected the power companies’ argument that the plaintiffs’ use of a federal common law nuisance cause of action to reduce domestic carbon dioxide emissions would “impermissibly interfere with the President’s authority to manage foreign relations.”\textsuperscript{53} The court countered that the plaintiffs were not asking the court “to fashion a comprehensive and far-reaching solution to global climate change.”\textsuperscript{54} Instead, they were seeking to limit the emissions of only the six defendant plants based upon their contention that these defendants are causing them injury.\textsuperscript{55} Assessing the second \textit{Baker} factor, the court reasoned that complex federal public nuisance cases have been commonplace during the past century of legal history,\textsuperscript{56} and that “well-settled principles of tort and public nuisance law” have frequently been used to analyze a variety of new and complex problems.\textsuperscript{57}

\textsuperscript{48} \textit{See generally Massachusetts v. EPA}, 549 U.S. 497 (2007) (holding that a global warming-based claim was justiciable).
\textsuperscript{49} \textit{See id.} at 498 (recognizing that the EPA’s refusal to regulate greenhouse gases resulted in real risk of harm to Massachusetts); \textit{Massachusetts v. EPA}, 415 F.3d 50, 60 (D.C. Cir. 2005).
\textsuperscript{50} \textit{Massachusetts v. EPA}, 549 U.S. at 526; \textit{see, e.g.}, Philip Weinberg, “Political Questions”: \textit{An Invasive Species Infecting the Courts}, 19 DUKE ENVT. L. & POL’Y F. 155, 163 (2008) (noting that there was no political question issue in \textit{Massachusetts v. EPA}: “the Court flatly stated that the suit did not seek adjudication of a political question’’); Linda Greenhouse, \textit{Justices Say E.P.A. Has Power to Act on Harmful Gases}, N.Y. TIMES, Apr. 3, 2007, at A1.
\textsuperscript{51} \textit{See Massachusetts v. EPA}, 549 U.S. at 526; Greenhouse, \textit{supra} note 50 (“Court cases around the country had been held up to await the decision in this case.”); \textit{see also} Howard Shapiro et al., \textit{Second Circuit Reinstates Lawsuit Claiming GHG Emissions from Six Utilities constitute Nuisance Under Federal Common Law}, VAN NESS FELDMAN (Sept. 24 2009), \textit{http://www.vnfn.com/assets/attachments/529.pdf} (discussing the Second Circuit’s heavy reliance on \textit{Massachusetts v. EPA} in \textit{AEP}).
\textsuperscript{53} \textit{Id.} at 324.
\textsuperscript{54} \textit{Id.} at 325.
\textsuperscript{55} \textit{Id.}
\textsuperscript{56} \textit{Id.} at 326–27.
\textsuperscript{57} \textit{Id.} at 326–28.
As to the third Baker factor, defendants argued that the complexities surrounding global warming give way to “unmanageable policy questions a court would then have to confront” in deciding the case.\textsuperscript{58} The court disagreed, holding that a federal court deciding a common law nuisance cause of action, “brought by domestic plaintiffs against domestic companies for domestic conduct, does not establish a national or international emissions policy.”\textsuperscript{59} The court added that the plaintiffs “need not await an ‘initial policy determination’ in order to proceed on this . . . claim,”\textsuperscript{60} and that Congress’s hesitancy to pass a law regulating greenhouse gas emissions does not equal an intent “to supplant the existing common law in that area.”\textsuperscript{61}

In assessing the final three Baker factors, the court recognized that the United States does not have a “unified” global warming policy.\textsuperscript{62} Thus, by deciding this case, it is impossible for the court to “demonstrate any lack of respect for the political branches, contravene a relevant political decision already made, or result in multifarious pronouncements that would embarrass the nation.”\textsuperscript{63} The defendants themselves cited legislation indicating that the United States intends to create legislation in the future, which will reduce the emission of greenhouse gases.\textsuperscript{64} In sum, the court held that the district court erred in its dismissal of the plaintiffs’ claim on justiciability grounds.\textsuperscript{65}

**B. Standing**

Another hurdle for global warming plaintiffs is standing.\textsuperscript{66} This prerequisite to suit limits the jurisdiction of federal courts to certain delineated “Cases” and “Controversies” under Article III, Section 2 of the U.S. Constitution.\textsuperscript{67} There are two basic forms of standing: state—

\textsuperscript{58} Am. Elec. Power Co., 582 F.3d at 326.
\textsuperscript{59} Id. at 325.
\textsuperscript{60} Id. at 331.
\textsuperscript{61} Id. at 330.
\textsuperscript{62} Id. at 332.
\textsuperscript{63} Id.
\textsuperscript{64} Am. Elec. Power Co., 582 F.3d at 332.
\textsuperscript{66} See Drabick, supra note 26, at 531–32; Merrill, supra note 26, at 294–99.
\textsuperscript{67} U.S. Const. art. III, § 2. Although this provision does not explicitly mention the term “standing” or “personal stake,” the Supreme Court has recognized standing as an Article III limitation since its 1944 decision, Stark v. Wickard, 321 U.S. 288, 304 n.19 (1944) (citing Marbury v. Madison, 5 U.S. (1 Cranch) 137 (1803) for the principle of personal stake or injury); Cass R. Sunstein, What’s Standing After Lujan?: Of Citizen Suits, “Injuries,” and Article III, 91 Mich. L. Rev. 163, 168 (1992). The Constitution does not specifically
or *parens patriae*—standing and individual standing. As *parens patriae*, or “parent of the country,” a state asserts a “quasi-sovereign interest” in protecting the health and well-being of its citizens, as well as its own “interest independent of and behind the titles of its citizens, in all the earth and air within its domain.” The Supreme Court has allowed states a lowered bar, or special solicitude, for standing given their unique status. An individual, in contrast, sues for his or her own personal injury without the benefit of a lowered bar to standing. In the case of global warming plaintiffs, standing is problematic in three ways: (1) the uncertainty of the injury; (2) the sufficiency of scientific evidence linking global warming with its effects; and (3) the redressability of a world-wide problem.

1. Modern Standing: The *Lujan* Cases

In the 1980s, the Reagan Administration’s policies to stem the flow of citizen suits and limit the EPA’s enforcement capabilities narrowed the standing doctrine. These policies resulted in two landmark standing decisions, both written by Justice Scalia: *Lujan v. National Wildlife Federation* (*Lujan I*) and *Lujan v. Defenders of Wildlife* (*Lujan II*). The *Lujan* cases turned the modern standing doctrine into a strict test.

a. The Modern Standing Test

In *Lujan I*, decided in 1990, the Supreme Court identified two requirements that an individual must establish in order to bring suit: (1)
some specific harm caused by the defendant; and (2) either a “legal wrong” caused by the challenged action, or that the plaintiff is “adversely affected or aggrieved . . . within the meaning of a relevant statute.” 77 In that case, the plaintiffs’ claim failed to satisfy the standing test due to lack of specificity and certainty of injury. 78

If there was any question that Lujan I had altered the standing doctrine, Justice Scalia affirmed that the doctrine was indeed narrowed two years later in Lujan II. 79 In his plurality opinion, Justice Scalia synthesized a three-part “irreducible constitutional minimum of standing” from past cases: (1) injury in fact, which is (a) “concrete and particularized” and (b) “actual or imminent”; (2) “a causal connection between the injury and the conduct complained of”; and (3) “it must be likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision.” 80 The Court held that a nebulous future intent to observe endangered species in a foreign country did not constitute actual or imminent injury. 81 Also, redressability could not be obtained because even if the Court granted the “injunction requiring the Secretary to publish [the plaintiffs’] desired regulation,” it would not be binding on the agencies and thus ineffective in producing the desired result. 82 In his concurrence, Justice Kennedy foreshadowed the global warming cases of the new millennium with a broad proclamation: “Congress has the power to define injuries and articulate chains of causation that will give rise to a case or controversy where none existed before.” 83

b. Burden of Proof for Standing and the Merits

Another important part of the Lujan II decision is its discussion of the requisite burden of proof of standing for each stage in the litigation. 84 When a plaintiff seeks to assert standing at the pleading stage, “general factual allegations of injury resulting from the defendant’s conduct may suffice, for on a motion to dismiss we ‘presum[e] that general allegations embrace those specific facts that are necessary to

77 Lujan I, 497 U.S. at 882–83.
78 See id. at 899–900.
79 Hodas, supra note 69, at 463. See Lujan II, 504 U.S. 555, 560 (setting out a new, strict test for standing, which Justice Scalia interpreted especially stringently where the plaintiff is not the direct object of government action or inaction).
80 Lujan II, 504 U.S. at 560–61.
81 Id. at 563–64.
82 Id. at 569–70.
83 Id. at 580 (Kennedy, J., concurring); see Hodas, supra note 69, at 466–67.
84 Lujan II, 504 U.S. at 561.
support the claim.”\textsuperscript{85} Summary judgment, on the other hand, requires an assertion of specific facts.\textsuperscript{86} Finally, when proving a claim on the merits, the facts must be adequately supported by the evidence.\textsuperscript{87} At this point in the litigation, the burden of proof is a preponderance of the evidence.\textsuperscript{88} Thus, proof of standing at the pleading stage requires a lower burden than proof on the merits.\textsuperscript{89}

2. Global Warming Suits

a. The Broadening of the Standing Doctrine for Global Warming Plaintiffs

The first global warming case to be decided by the Supreme Court, \textit{Massachusetts v. EPA}, changed the course of the standing doctrine, broadening it to allow more plaintiffs standing to sue under a cause of action based on global warming.\textsuperscript{90} The case is considered a landmark decision in environmental law because of its bold grant of standing for a seemingly untraceable and unparticularized injury.\textsuperscript{91} Massachusetts sought review of the EPA’s decision not to regulate greenhouse gas emissions from motor vehicles under the Clean Air Act.\textsuperscript{92} In its capacity as \textit{parens patriae}, the Commonwealth claimed both present and future injuries, such as loss of coastline due to rising sea levels and more intense storm events, “severe and irreversible changes to natural ecosystems,” and an increase in the spread of disease.\textsuperscript{93} The Court could have

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{85}] Id. (citing \textit{Lujan I}, 497 U.S. 871, 889 (1990)).
\item[\textsuperscript{86}] Id.
\item[\textsuperscript{87}] Id.
\item[\textsuperscript{88}] W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS § 41, at 269 (5th ed. 1984).
\item[\textsuperscript{89}] See \textit{Lujan II}, 504 U.S. at 561.
\item[\textsuperscript{92}] Compare \textit{Massachusetts v. EPA}, 549 U.S. at 521–26 (granting standing based on future and present harm from global warming), \textit{with} Korinsky v. EPA, 192 Fed. Appx. 71, 71 (2d Cir. 2006) (dismissing public nuisance action for lack of standing because future injury due to global warming was “too speculative”).
\item[\textsuperscript{93}] \textit{Massachusetts v. EPA}, 549 U.S. at 521–22.
\end{itemize}
\end{footnotesize}
followed *Lujan II* and rejected the claim of injury for lack of particularity, imminence, or traceability. Instead, the Court reached back to turn-of-the-century precedent, *Georgia v. Tennessee Copper, Co.*, for the notion that states deserve “special solicitude” in the standing analysis when invoking a quasi-sovereign interest. In a 5–4 decision, the Court held that Massachusetts had alleged: (1) particularized injury, because of its ownership of substantial property that had already been swallowed by rising seas; (2) causation, because defendants had contributed significantly to the plaintiff’s injuries by refusing to regulate greenhouse gas emissions; and (3) redressability, because even an incremental improvement in the plaintiff’s harm would help redress the injury.

*Massachusetts v. EPA* gave plaintiffs with pending global warming cases new hope by opening up the courts to their claims for the first time. However, the decision on standing was surprising to the legal community, as evidenced by Chief Justice Roberts’s vigorous dissent. The dissent accused the majority of using “the dire nature of global warming . . . as a bootstrap for causation and redressability.” It further argued that the plaintiff’s alleged injury was neither imminent nor actual, but “pure conjecture,” going so far as to deny that global warming could ever constitute a particularized injury. In spite of these concerns, the majority of the Supreme Court placed its imprimatur on global warming suits in general, giving future global warming litigants positive authority to cite in their arguments.

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94 *Lujan II*, 504 U.S. at 560.
95 *Massachusetts v. EPA*, 549 U.S. at 518, 520 (citing *Georgia v. Tenn. Copper Co.*, 206 U.S. 230, 237 (1907)) (“It is of considerable relevance that the party seeking review here is a sovereign State and not, as it was in *Lujan*, a private individual.”). The Court “adopt[ed] a new theory of Article III standing for States,” even though no party or lower court judge had cited *Tenn. Copper Co.* in its brief. *Id.* at 539–40 (Roberts, C.J., dissenting).
96 *Massachusetts v. EPA*, 549 U.S. at 522 (“That these climate-change risks are ‘widely shared’ does not minimize Massachusetts’ interest in the outcome of this litigation.” (quoting Fed. Election Comm’n v. Akins, 524 U.S. 11, 24 (1998)).
97 *Id.* at 523–25.
98 *Id.* at 525–26.
101 *Id.* at 543.
102 *Id.* at 542.
104 See, *e.g.*, Comer v. Murphy Oil USA, 585 F.3d 855, 865 (5th Cir. 2009).
b. The Second Circuit Grants Non-State Entities Standing for Global Warming

AEP, a public nuisance action for global warming injury brought by a group of states, land trusts, and a city, solidified the new broader standing analysis of Massachusetts v. EPA and extended it to non-state parties. In that case, the plaintiffs sued electric power plants for injuries arising from defendants’ contribution to global warming by burning fossil fuels. The states and city asserted a litany of present and future injuries, including temperature increase leading to a decrease in mountain snowpack used for drinking water, earlier spring melting, flooding, and sea level rise, which had already begun to inundate their coastal property and would continue without abatement. The trusts claimed the following “special” future injuries: a decrease in the ecological value of their properties, permanent inundation of some of their property, and destruction of wildlife habitat from smog and salinization. At the district court level, the plaintiffs’ claims were dismissed as nonjusticiable. The district court judge refused to analyze the issue of standing because it “would involve an analysis of the merits of Plaintiffs’ claims.”

However, on appeal, the Second Circuit vacated the lower court’s decision, holding that the state plaintiffs had asserted concrete, particularized, and redressable injury that was “fairly traceable” to the actions of defendants, thus meeting the standing test under Lujan II. For the first time, non-state plaintiffs—New York City and the land trusts—were also granted standing for asserting similar injuries. Since the court vacated and remanded back to the district court, it never addressed the merits of the case. In December of 2010, the Supreme Court granted certiorari to American Electric Power Co. This will be the first opportunity for the Supreme Court to rule on the legitimacy of public nuisance

107 Id. at 317–18.
108 Id. at 318.
110 Id. at 271 n.6.
112 Id. at 371.
113 Id. at 393.
claims against greenhouse-gas-emitting companies for global warming injuries.115

II. TORT CONCEPTS IN CITIZEN SUITS AGAINST GLOBAL WARMING

Although in pre-Industrial Revolution England global warming was merely a glimmer of unknowable future, the English common law claim of public nuisance116 provided the key to future global warming suits.117 Its broad applicability to communal annoyances of all types and its ability to adapt to unforeseen causes of action makes public nuisance the perfect tool for plaintiffs affected by global warming.118 It is also an effective vehicle for overcoming the justiciability barrier because “[c]ommon-law tort claims are rarely thought to present nonjusticiable political questions.”119

A. Public Nuisance

Public nuisance is defined as “an unreasonable interference with a right common to the general public.”120 An interference may be deemed unreasonable if: (1) it “involves a significant interference with the public health, the public safety, the public peace, the public comfort or the public convenience”; (2) “the conduct is proscribed by a statute, ordinance or administrative regulation”; or (3) “the conduct is of a continuing nature or has produced a permanent or long-lasting


116 Public nuisance originated in English common law in the early 1600s, was later adopted by the American colonies, and entered the realm of civil common law around the turn of the twentieth century. See Connecticut v. Am. Elec. Power Co., 582 F.3d 309, 350 (2d Cir. 2009), cert. granted, 131 S. Ct. 813 (2010); Denise E. Antolini, Modernizing Public Nuisance: Solving the Paradox of the Special Injury Rule, 28 Ecology L.Q. 755, 790 (2001).


118 See, e.g., Massachusetts v. EPA, 549 U.S. 497 (property damage from global warming); Tenn. Copper Co., 206 U.S. at 236 (cross-border air pollution); Missouri v. Illinois, 180 U.S. at 214 (cross-border water pollution); Comer, 585 F.3d at 859 (property damage from intensified effects of Hurricane Katrina caused by defendants’ contributions to global warming); Am. Elec. Power Co., 582 F.3d at 350 (harm to human health and natural resources from global warming).

119 Comer, 585 F.3d at 873.

120 RESTATEMENT (SECOND) OF TORTS § 821B (1979). This right has traditionally been afforded broad construction. Am. Elec. Power Co., 582 F.3d at 328. Unlike private nuisance, which protects an individual’s right to enjoyment of his own property, public nuisance protects the collective right of a considerable number of persons to enjoy public property. Id.
effect, and, as the actor knows or has reason to know, has a significant
effect upon the public right.”121 The elements that must be proven are
that (1) a nuisance exists, (2) defendant’s actions caused the nuisance,
and (3) plaintiff suffered injury or damage proximately resulting from
the nuisance.122 A proximate cause “directly produces an event,” and
without that cause, the event would not have occurred.123 It places a
limit on the liability of an individual for his actions.124 If the chain of
causation alleged to prove proximate cause is too attenuated, courts
will usually dismiss the claim.125

1. Early State Claims of Public Nuisance

Following the Supreme Court’s model in Massachusetts v. EPA,126
plaintiffs have taken to citing early public nuisance cases to support
their global warming claims.127 The earliest public nuisance claims
tried by the Supreme Court involved cross-border pollution.128 These
turn-of-the-twentieth-century suits were brought by states in their capac-
ity as parens patriae to protect the health and well-being of their citizens,
as well as to uphold the states’ own quasi-sovereign interest “in all the
earth and air within its domain.”129 In Missouri v. Illinois, the Supreme
Court recognized a nuisance claim for pollution of a river by a neigh-
boring state.130 The Court noted that “an injunction to restrain a nui-
sance will issue only in cases where the fact of nuisance is made out up-
on determinate and satisfactory evidence,” and that the risk of injury
must be real and immediate.131 Based on the undisputed facts and state
water rights precedent, the Court granted the plaintiff’s injunction.132
Similarly, in 1907, Georgia v. Tennessee Copper Co. demonstrated that a
state could successfully prevent a company in a neighboring state from “discharging noxious gas” from its factories into the plaintiff’s own territory, causing the destruction of forests and crops. In recognizing this release of “noxious gas” as a public nuisance, the Court explained the history behind the cause of action:

When the states by their union made the forcible abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests; and the alternative to force is a suit in this court.

The Court held that Georgia had presented sufficient proof that the “noxious gas” injured Georgia’s territory so as to satisfy the standard set out in *Missouri v. Illinois*, and granted the plaintiff’s injunction.

2. Public Nuisance Claims to Combat Global Warming

Public nuisance claims have been used to combat pollution and statutory injuries since the sixteenth century. However, not until 2009, in the wake of a new environmental movement, did two groundbreaking cases use a public nuisance claim to combat global warming. The first public nuisance climate change case, *American Electric Power Co. (AEP)*, demonstrated that both states and non-state entities had standing to bring suit for abatement of the nuisance. It also expanded on *Massachusetts v. EPA’s* recognition of the connection between global warming cases and cross-border pollution cases. Applying the *Restatement* definition of public nuisance, the Second Circuit held that the defendants’ contribution to global warming through emission of GHGs constituted a “substantial and unreasonable inter-
ference with public rights in the plaintiffs’ jurisdictions” under Restatement section 821B(2)(a). The defendants also knew their emissions would cause a permanent or long-lasting effect. In deciding that the states had stated a claim under the common law of nuisance, the court emphasized the fact that the nuisance caused by climate change is of a “serious magnitude.”

Because the Supreme Court had only granted state plaintiffs standing to sue for global warming in Massachusetts v. EPA, the Second Circuit spent a full thirteen pages of its opinion addressing the standing of the non-state plaintiffs—municipalities and land trusts. The court recognized that the reasoning from pollution cases could easily be applied to the global warming cases at hand. After conducting an analysis of the Supreme Court public nuisance case Illinois v. City of Milwaukee, relying on the decisions of other circuits, and applying the Restatement sections 821B and C, the Second Circuit held that common law nuisance suits are available to private plaintiffs.

When the Second Circuit finally made the connection between pollution cases and global warming cases in AEP, the doors of the courthouse opened to citizen plaintiffs. By treating this global warming suit no differently than a common law public nuisance suit for abatement of pollution, the court recognized that this “new” cause of action is anything but novel. While in the past nuisance claims for pollution tended to be of a simple type, no case had ever held that the

141 Id. at 352, 358, 369; Restatement (Second) of Torts § 821B (1979).
142 Id. at 353.
143 Id. at 358.
144 Id. at 358–71.
146 Id. at 363, 366 (citing Illinois v. City of Milwaukee, 451 U.S. 304, 317 (1981), Nat’l Sea Clammers Ass’n v. City of New York, 616 F.2d 1222 (3d Cir. 1980), and City of Evansville v. Ky. Liquid Recycling, Inc., 604 F.2d 1008 (7th Cir. 1979)).
147 Id. at 369.
complexity of a public nuisance claim could bar its use.\textsuperscript{150} The public nuisance of global warming fit the mold of past pollution cases simply because nothing in those cases required that the gas be “noxious” or the harm be immediate.\textsuperscript{151}

\textbf{B. Trespass}

Trespass actions are another viable way for environmental plaintiffs to combat global warming.\textsuperscript{152} Although quite similar to nuisance, trespass requires actual entry onto the land of another.\textsuperscript{153} Historically, trespass was a strict liability offense that could be triggered by merely tossing a rock into a neighbor’s yard.\textsuperscript{154} However, with the progress of late-twentieth century science, courts were forced to recognize that the invasion of invisible radioactivity or toxic gas was indeed “physical.”\textsuperscript{155} If the intrusion is invisible, the plaintiff has the added burden of proving sufficient damage to the property or persons involved.\textsuperscript{156} Since monetary damages are hard to approximate in trespass cases, the remedy given for trespass is an injunction.\textsuperscript{157} Recently, in \textit{Comer v. Murphy Oil USA}, a class of plaintiffs sought damages for global warming injury by suing for trespass, in addition to other tort claims like nuisance and negligence.\textsuperscript{158}

\textbf{III. \textit{Comer v. Murphy Oil USA: A Lesson in Breaking Down Barriers to Global Warming Suits}}

The perfect storm—and the perfect test case—struck the Fifth Circuit in 2009, giving legs to a burgeoning global warming suit move-

\begin{itemize}
  \item \textsuperscript{150} Id.
  \item \textsuperscript{151} Id. at 357.
  \item \textsuperscript{152} Cutting & Cahoon, \textit{supra} note 28, at 154.
  \item \textsuperscript{153} \textit{Restatement (Second) of Torts} § 158 (1965).
  \item \textsuperscript{154} Cutting & Cahoon, \textit{supra} note 28, at 155 (citing Robert H. Cutting & Lawrence B. Cahoon, \textit{Thinking Outside the Box: Property Rights as a Key to Environmental Protection}, 22 \textit{Pace Envtl. L. Rev.} 55, 61 (2005)). Later courts recognized that this view was in conflict with Industrial Revolution principles that airspace and water were “free goods” for waste disposal. \textit{Id.}
  \item \textsuperscript{155} Id. at 156; \textit{see also} \textit{Restatement (Second) of Torts} §§ 158–159 (1965). The Alabama Supreme Court in \textit{Borland v. Sanders Lead Co.} stated: “[W]e may define trespass as an intrusion which invades the possessor’s protected interest in exclusive possession, whether that intrusion is by visible or invisible pieces of matter or by energy which can be measured only by the mathematical language of the physicist.” 369 So. 2d 523, 528 (Ala. 1979).
  \item \textsuperscript{156} Cutting & Cahoon, \textit{supra} note 28, at 156; \textit{see also} Borland, 369 So. 2d at 529 (holding that “substantial damage to the Res” is required to recover for trespass).
  \item \textsuperscript{157} Cutting & Cahoon, \textit{supra} note 28, at 159.
  \item \textsuperscript{158} \textit{See} \textit{Comer v. Murphy Oil USA}, 585 F.3d 855, 859 (5th Cir. 2009).
\end{itemize}
Two months after *American Electric Power Co. (AEP)* was handed down, *Comer v. Murphy Oil USA* became the first case to hold that a class of purely private citizens could satisfy both standing and the political question doctrine in a tort suit against greenhouse-gas-emitting energy companies. It was also the first case to solicit money damages for global warming injury. Despite its success before the Fifth Circuit panel, the case fell into a procedural abyss and met its definitive end upon the denial of a writ of mandamus to reinstate the favorable Fifth Circuit panel decision.

In *Comer*, the plaintiffs brought suit for compensatory and punitive damages under Mississippi common law of public and private nuisance, trespass, and negligence. The novelty of this case was readily apparent in its convoluted chain of causation: property owners along the Mississippi Gulf Coast sued oil and energy companies for emitting greenhouse gases that contributed to global warming, which in turn caused a rise in sea levels and added to the intensity of Hurricane Katrina, which damaged their property. The plaintiffs claimed that the defendants committed public and private nuisance by “intentionally and unreasonably us[ing] their property so as to produce massive

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159 See Rivkin, Jr. et al., supra note 148, at 1 (“Common law ‘nuisance’ litigation has emerged as the strategy of choice for climate change activists and plaintiffs’ lawyers seeking to limit in a piecemeal fashion U.S. greenhouse gas . . . emissions.”). See generally Comer v. Murphy Oil USA, 585 F.3d 855, 859 (5th Cir. 2009).

160 See Comer, 585 F.3d at 859.

161 Id. at 863 (“In their nuisance, trespass and negligence claims, the plaintiffs have clearly satisfied the first and third constitutional minimum standing requirements. These state common-law tort claims . . . can be redressed by the compensatory and punitive damages they seek for those injuries.”).


163 *Comer*, 585 F.3d at 859. Plaintiffs also brought unjust enrichment, fraudulent misrepresentation, and civil conspiracy claims, which were dismissed by the court for failure to satisfy prudential standing. The court held that each of these claims presented a “generalized grievance” common to all citizens of the United States. Id. at 859–60.

164 Id. at 859; see also Jackson, supra note 20 (“[Plaintiffs’] causation theory sounds a little like the litigator’s equivalent to the game ‘Six Degrees of Kevin Bacon.’”); Gil Keteletas, Fifth Circuit Reverses Comer, joins Second Circuit in Approving Tort-based Climate Litigation, HOWRY, LLP GLOBAL CLIMATE LAW BLOG (Oct. 19, 2009), http://www.globalclimatelaw.com/articles/climate-change-litigation/ (recognizing the “high hurdle” that still remains on the causation issue); see WIMS, Comer v. Murphy Oil USA, ENVIRONMENTAL—APPEALS COURT (Oct. 21, 2009, 4:34 PM), http://environmentalappealscourt.blogspot.com/2009/10/comer-v-murphy-oil-usa.html.
amounts of greenhouse gases” causing injury to both the general public and the plaintiffs. Their negligence claim was that the defendants had a duty of care to avoid unreasonably endangering the environment and the public, and that the defendants breached that duty by emitting greenhouse gases, which caused damage. Finally, the plaintiffs alleged that the “defendants’ greenhouse gas emissions caused saltwater, debris, sediment, hazardous substances, and other materials to enter, remain on, and damage plaintiffs’ property,” thus creating a trespass.

The District Court for the Southern District of Mississippi granted defendants’ motion to dismiss, dismissing Comer for lack of standing and because the plaintiffs’ claims were nonjusticiable. The plaintiffs appealed to the Fifth Circuit, and prevailed on the issues of standing and justiciability. On February 26, 2010, the Fifth Circuit granted the rehearing en banc. But it was not to be; one of the nine judges who had initially agreed to rehear the case recused himself. On May 28, 2010, five Fifth Circuit judges issued an order dismissing Comer, not on the merits, but for the procedural reason of lack of a quorum. The order explained that the original grant of rehearing en banc had the effect of vacating the 2009 panel decision. In other words, the district court’s opinion dismissing the case had been reinstated. The Comer plaintiffs responded by petitioning for an extraordinary writ of mandamus from the Supreme Court that would compel the Fifth Circuit to reinstate at least the appeal, and if a quorum was still lacking, the panel’s opinion. That petition was denied without comment on January 10, 2011.

The three judges who had signed the 2009 panel opinion filed two vigorous dissents. Judge Dennis called the vacation of the panel deci-

165 Comer, 585 F.3d at 860–61.
166 Id. at 861.
167 Id.
168 See Comer v. Murphy Oil USA, 2007 WL 6942285 (S.D. Miss. 2007) (dismissing the case).
170 Comer v. Murphy Oil USA, 598 F.3d 208 (5th Cir. 2010).
171 Comer v. Murphy Oil USA, 607 F.3d 1049, 1055 (5th Cir. 2010); see also Stephen Patrick, Lack of Quorum Prompts Fifth Circuit to Dismiss Appeal of Climate-Related Lawsuit, 41 Env’t Rep. (BNA) 1235 (June 4, 2010).
172 Comer, 607 F.3d at 1055; Patrick, supra note 171.
173 Comer, 607 F.3d at 1054.
174 See Schleifstein, supra note162; Wood, supra note 162.
176 In re Comer, 131 S. Ct. 902 (2011) (mem.).
177 Comer, 607 F.3d at 1055–66.
sion and dismissal of the appeal “shockingly unwarranted” and “manifestly contrary to law and Supreme Court precedents.”

Both dissents argued that a lost quorum did not warrant overturning the panel’s decision, and that it robbed the plaintiffs of their right to appeal. However, the majority’s order did not completely foreclose the plaintiffs’ path to relief. In the final line of the order, the Fifth Circuit recognized the plaintiffs’ right to petition the Supreme Court for certiorari. It is unclear why the Comer plaintiffs chose to petition for a writ of mandamus over the conventional certiorari, but in doing so, they effectively removed the merits of their case from Supreme Court adjudication. Although no longer good law in the Fifth Circuit, the “lost” panel opinion is a valuable resource for other global warming plaintiffs at the Supreme Court level.

A. Justiciability Ruled Not to Be a Barrier to Global Warming Suits by Fifth Circuit Panel

The Comer plaintiffs were able to meet the justiciability requirements due to the Fifth Circuit panel’s total reliance on one of the six Baker factors. Citing Nixon v. United States, the Fifth Circuit recognized the factors as “open-textured, interpretative guides” that should not be applied until the party moving to dismiss identifies a constitutional provision or federal law that commits a material issue exclusively to a political branch. Since the defendant energy companies failed to identify any such “textual commitment . . . to a federal political branch,” the court held that the issue was “clearly justiciable.” In other words, because the only issues in the case were rooted in Mississippi common law tort claims for damages, the court deemed an analysis of the Baker factors unnecessary. The Comer defendants relied on

178 Id. at 1056.
179 Id. at 1055–66; see Patrick, supra note 171 at 1235.
180 Comer, 607 F.3d at 1055.
181 See Wood, supra note 162 (opining that the Comer plaintiffs had no choice but to petition for a writ of mandamus in order to keep the case alive).
182 See Schleifstein, supra note 162.
183 See id.
184 Comer v. Murphy Oil USA, 585 F.3d 855, 872, 875 (5th Cir. 2009).
185 Id. at 872.
186 Id. at 875.
187 Id. at 872.
188 Id. at 875. The court went on to clarify that statutes like the Clean Air Act and Clean Water Act have never been held to preempt states from public nuisance actions based in global warming issues. Id. at 878–79.
the Southern District of New York holding of nonjusticiability in American Electric Power Co. (AEP), which was reversed on appeal just two weeks before this case was decided.\(^ {189}\) The Fifth Circuit panel disagreed with the AEP district court decision because it failed to hold that a “specific issue . . . had been exclusively committed to a political branch by a federal constitutional or statutory provision.”\(^ {190}\) If the threshold requirement of textual commitment is not met, the issue is automatically justiciable.\(^ {191}\)

As in AEP, the Comer defendants also argued for nonjusticiability by assuming the plaintiffs’ claims would “require the district court to fix and impose future emission standards upon defendants and all other emitters[, which] would be ‘impossible’ for a court to perform” because of its political nature.\(^ {192}\) The Fifth Circuit held that defendants’ arguments, and the AEP district court’s reasoning, were flawed because state tort law provides “long-established standards for adjudicating the nuisance, trespass and negligence claims at issue.”\(^ {193}\) In sum, since there was no constitutional provision or federal law that limited the plaintiffs’ state tort claim and because state tort law provided applicable standards by which the court could decide the issue, the plaintiffs’ tort claims were held to be justiciable.\(^ {194}\)

B. Massachusetts v. EPA as a Vehicle for Overturning the Standing Barrier

The Comer plaintiffs were able to break through the standing barrier at the panel level because of two conditions: (1) the lowered bar to standing at the pleading stage;\(^ {195}\) and (2) reliance on Massachusetts v. EPA, the only global warming case the Supreme Court has yet addressed.\(^ {196}\) First, the plaintiffs were not required to prove any specific

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\(^ {189}\) Comer, 585 F.3d at 876–77, 879.


\(^ {191}\) Id. at 873.

\(^ {192}\) Id. at 879.

\(^ {193}\) Id. at 875.

\(^ {194}\) Id. at 879–80.


\(^ {196}\) Comer, 585 F.3d at 865 (comparing the defendants failed arguments in Massachusetts v. EPA with those of the Comer defendants); see Jackson, supra note 20 (“[T]he Fifth Circuit..."
facts linking defendants with the harm alleged from global warming. The court simply assumed that the scientific reports “alleg[ing] a chain of causation between defendants’ substantial emissions and plaintiffs’ injuries” were true at this point in the litigation. If the plaintiffs had been forced to defend their standing on the merits, they probably would not have succeeded.

The second way in which the plaintiffs were able to meet this preliminary standing requirement was by standing on the shoulders of Massachusetts v. EPA. The Fifth Circuit panel explicitly relied on Massachusetts v. EPA in Comer, noting the similarity between the defendant oil and energy companies’ argument that “traceability is lacking because their emissions contributed only minimally to plaintiffs’ injuries” and that of the EPA in Massachusetts v. EPA. Since the Supreme Court in that case had concluded that contribution of emissions is enough to satisfy the fairly traceable standard, the defendants’ argument in Comer had to fail.

It is surprising that the Fifth Circuit panel felt bound by Massachusetts v. EPA because the star plaintiff in Massachusetts v. EPA was a sovereign state, acting in its capacity of parens patriae, whereas the plaintiffs in Comer were private citizens. The Supreme Court awarded Massachusetts “special solicitude” in the standing analysis based on the 100-year-old public nuisance case Georgia v. Tennessee Copper Co. In contrast, the plaintiffs in Comer were all private citizens who deserved no leniency in the determination of standing. The Fifth Circuit may have fixated on the separate Lujan standing analysis conducted by the Supreme Court to evaluate the Commonwealth’s claims as a property owner. In that analysis, the Supreme Court seemed to be loosening the once strict

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197 Comer, 585 F.3d at 864.
198 Id.
200 Comer, 585 F.3d at 865.
201 Id. at 866 (citing Massachusetts v. EPA, 549 U.S. 497, 523 (2007)).
202 See id. at 865–66.
203 Massachusetts v. EPA, 549 U.S. at 518.
204 Id. at 518.
205 Loria, supra note 72.
standing requirements set out in *Lujan*. These parallel analyses made *Massachusetts v. EPA* confusing and easy to misinterpret. One plausible reading of the case is that it lengthened the chain of causation for standing in general. However, the Fifth Circuit reasoned that since the chain of causation in this case is one step shorter than in *Massachusetts v. EPA*, the plaintiffs had no need for special solicitude.

IV. **Comer v. Murphy Oil USA: A Test Case For Future Global Warming Plaintiffs**

In the words of T.S. Eliot, the end of *Comer v. Murphy Oil USA* came, “[n]ot with a bang, but with a whimper.” In the wake of the startling dismissal of *Comer* based on a procedural technicality and the subsequent denial of the unorthodox writ of mandamus, the Supreme Court has granted its sister case, *American Electric Power Co.* (AEP), certiorari. Because the *Comer* plaintiffs opted for a procedural resolution to their case instead of the usual certiorari, they essentially relegated the merits to the earlier-filed *American Electric Power Co.* That case will answer the same questions posed by *Comer*, namely whether parties injured by the effects of global warming have standing and whether global warming issues are justiciable.

As the Supreme Court examines, for the first time, the merits of a public nuisance suit against greenhouse-gas-emitting companies, it will likely be influenced by the developing trend in lower courts toward acceptance of public nuisance as a vessel for litigating global warming tort suits. The fate of cases like *AEP* may be read through the lens of *Comer*.

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207 See *id.* at 521–26.
209 *Comer v. Murphy Oil USA*, 585 F.3d 855, 865 (5th Cir. 2009); Massey, supra note 207, at 260. *See generally* Scalia, supra note 75.
210 *Comer*, 585 F.3d at 865 n.5.
214 *Id.*
215 Cook, supra note 35.
Global warming plaintiffs should turn to the “lost” Fifth Circuit panel decision in *Comer* in forming their arguments. However, a complete victory on the merits for such global warming plaintiffs is dubious. Part IV.A, below, predicts that the Supreme Court, in *AEP*, will probably follow the Fifth Circuit panel’s original holding in *Comer* on the issues of standing, justiciability, and use of tort causes of action. As support for this decision, the Court will look to public nuisance pollution precedent and *Massachusetts v. EPA*. Part IV.B foresees difficulty on the issue of causation when the merits are finally decided. The chain of causation from injury to greenhouse gas emissions by individual defendants is simply too attenuated to satisfy proximate cause.

**A. In Future Global Warming Tort Suits, the Supreme Court Will Likely Resurrect the Lost Fifth Circuit Panel Decision on the Issues of Standing, Justiciability, and Tort Causes of Action**

The only global warming case the Supreme Court has litigated is *Massachusetts v. EPA*. Although in that case the Supreme Court addressed a different claim—the ability of a state to challenge a rulemaking decision by the EPA—that case is pivotal in predicting how the Court will rule in *AEP*.

The Court also has an interest in deciding this issue before it results in a flood of climate change suits. Even though no plaintiff has actually recovered for global warming injury, recent appellate decisions allowing such plaintiffs to have their day in court has opened a door that was once closed. Private citizens can now choose an energy plant at random to blame for storm damage or flooding in their coastal home. In light of this new judicial tolerance of global warming suits, it is likely that many plaintiffs will initiate such suits until the Supreme Court rules on the issue.

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216 Donald, *supra* note 198 (suggesting the possibility of “read[ing] the tea leaves in *Connecticut* through the *Comer* lens”).

217 See Schleifstein, *supra* note 162 (summarizing *Massachusetts v. EPA* in connection with *Comer* for the recognition by the Supreme Court of global as a redressable injury).

218 *Donald, supra* note 198.

219 Id.

220 See id.

221 See id.

222 Rivkin, Jr. et al., *supra* note 148, at 14–15 (“In light of the scientific theory of how GHG emissions may drive global warming, the *Comer* decision’s ‘contribute to’ standard could open the courts to a flood of lawsuits seeking damages for weather-related events.”).

223 Id.

224 Am. Bar Ass’n, *supra* note 26, at 184.
1. Justiciability

Based on its own interpretations of the political question doctrine, the Supreme Court will likely uphold the justiciability of a state tort claim like the one in *AEP*.\(^{225}\) Since *Massachusetts v. EPA* did not deal directly with justiciability, global warming plaintiffs will have to rely on the political question standard as set out in *Baker v. Carr* and *Nixon v. United States*.\(^{226}\) The Fifth Circuit failed to apply the *Baker* factors at all because it found that the defendants had not proven that the plaintiffs’ state tort claim was textually committed to a political branch of government.\(^{227}\) The Court may find that the Fifth Circuit misread its political question doctrine precedent.\(^{228}\) Since *Baker* states that finding any one of its factors “inextricable from the case at bar” would implicate the political question doctrine, the Supreme Court may have implied that the factors should be analyzed as a whole.\(^{229}\)

However, the stronger argument seems to be that the 1993 case, *Nixon*, clarified the Supreme Court’s intent as to the 1962 *Baker* factors. In *Nixon*, the Supreme Court recognized that before the *Baker* factors could be applied, a preliminary assessment of whether the issue was textually committed to a political branch was necessary.\(^{230}\) This is a logical interpretation of *Baker* because the policy behind the *Baker* factors is in favor of upholding justiciability.\(^{231}\) This purpose is strengthened by the fact that, since *Baker*, the Supreme Court has only dismissed two cases for nonjusticiability, one of which was *Nixon*.\(^{232}\)

The Fifth Circuit panel in *Comer* cited extensive precedent for the notion that federal courts may not abstain from deciding a case once they have jurisdiction, and that the political question doctrine is a limited exception to that rule.\(^{233}\) The Supreme Court has held that a federal court cannot avoid its responsibility to decide a case merely because

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\(^{226}\) *See generally Nixon*, 506 U.S. at 224 (holding that the *Baker* factors are only triggered by the moving party’s identification of a constitutional provision or federal law that commits a material issue exclusively to a political branch); *Baker*, 369 U.S. at 217 (listing the factors for determining justiciability).

\(^{227}\) *Comer v. Murphy Oil*, USA, 585 F.3d 855, 875, 879 (5th Cir. 2009).


\(^{229}\) *Id.* at 10–11.

\(^{230}\) *Nixon*, 506 U.S. at 228.

\(^{231}\) *Baker*, 369 U.S. at 217 (“Unless one of these formulations is inextricable from the case at bar, there should be no dismissal for non-justiciability on the ground of a political question’s presence.”).

\(^{232}\) *Comer*, 585 F.3d at 873.

\(^{233}\) *Id.* at 872.
it has political implications,\textsuperscript{234} lies outside the scope of a federal judge’s expertise, or because it is difficult, complex, novel, or esoteric.\textsuperscript{235} Global warming certainly has political implications because the government is currently deciding whether to pass legislation regarding greenhouse gas emissions.\textsuperscript{236} Tort recovery for injury from global warming is novel and possibly complex, but both of those qualities do not make it nonjusticiable.\textsuperscript{237} Therefore, in evaluating the justicability of the \textit{AEP} claims, the Supreme Court will likely agree with the Fifth Circuit’s panel opinion in \textit{Comer} that the state tort claim for injury from global warming is justiciable because there is no constitutional or statutory provision committing the issue to a political branch.\textsuperscript{238}

2. Standing

In a global warming case like \textit{AEP}, the Supreme Court will likely hold that the plaintiffs have standing to sue for tort injury from global warming because of its similar holding for global warming plaintiffs in \textit{Massachusetts v. EPA}.\textsuperscript{239} Although \textit{Massachusetts v. EPA} dealt with a statutory claim under the Clean Air Act, the Court still went through the same Article III standing analysis.\textsuperscript{240} This is because standing is a prerequisite for all suits.\textsuperscript{241} The main difference between \textit{Massachusetts v. EPA} and \textit{AEP} is that in the former case, the plaintiff was a state.\textsuperscript{242} However, the plaintiffs in \textit{AEP} include both states and private land trusts, and thus may cite \textit{Massachusetts v. EPA} as a case in which the Court granted state global warming plaintiffs special solicitude in the standing analysis.\textsuperscript{243}

Justices Scalia, Thomas, and Alito, and Chief Justice Roberts will almost certainly vote to deny standing based on their dissenting opinion in \textit{Massachusetts v. EPA}.\textsuperscript{244} There, Chief Justice Roberts recognized

\textsuperscript{235} \textit{Comer}, 585 F.3d at 869.
\textsuperscript{236} \textit{See H.R. 97, 112th Cong.} (2011) (seeking to amend the Clean Air Act to exclude greenhouse gases).
\textsuperscript{237} \textit{Comer}, 585 F.3d at 869.
\textsuperscript{238} \textit{See id.} at 870.
\textsuperscript{239} \textit{See Massachusetts v. EPA}, 549 U.S. 497, 526 (2007).
\textsuperscript{240} \textit{Compare Massachusetts v. EPA}, 549 U.S. at 521–26, \textit{with Comer}, 585 F.3d at 862–69.
\textsuperscript{241} U.S. Const. art. III, § 2.
\textsuperscript{242} \textit{Massachusetts v. EPA}, 549 U.S. at 518.
\textsuperscript{243} \textit{See id.} at 520.
\textsuperscript{244} \textit{See id.} at 535–60. Justices Scalia and Thomas would likely also oppose a broad standing analysis based on their majority opinion in \textit{Defenders of Wildlife}. Am. Bar Ass’n, \textit{supra} note 26, at 199 (citing \textit{Defenders of Wildlife}, 504 U.S. 555, 559–62 (1992)).
the catastrophic implications of global warming, but, in the interest of efficiency, would have denied standing because it is a crisis that may ultimately affect “nearly everyone on the planet.”

Private individuals may also achieve standing based on Massachusetts v. EPA. The majority opinion contains no holding that says citizen plaintiffs cannot assert injury from global warming for standing purposes. On the contrary, it treats the Commonwealth as an injured property owner. The best argument for individual plaintiffs will be that the Massachusetts v. EPA decision granted parens patriae standing and proprietary standing concurrently, thus implying that Massachusetts would have achieved standing even if it were not a state. It is true that in making the subsidiary determination of proprietary standing, the Court exceeded its narrow duty of only ruling on the necessary issues. This type of analysis also made Massachusetts v. EPA a confusing decision to interpret—it was thoroughly criticized by Chief Justice Roberts’s dis-

245 See Massachusetts v. EPA, 549 U.S. at 535 (Roberts, C.J., dissenting).
246 See Stephanie Francis Ward, Warming Up to Standing: In Greenhouse Gases Case, the High Court Broadens States’ Ability to File Claims, A.B.A J. E-Rep., Apr. 6, 2007, at 1 (“The majority lowered the bar for standing, probably not just for states but for all potential plaintiffs . . . .”).
247 Massachusetts v. EPA, 549 U.S. at 522 (“Because the Commonwealth ‘owns a substantial portion of the state’s coastal property,’ it has alleged a particularized injury in its capacity as landowner.”).
248 See id. at 518–26; see also Robert Meltz, Cong. Research Serv., RS22665, The Supreme Court’s Climate Change Decision: Massachusetts v. EPA 4 (2007) (“As to the first prong of the black-letter standing test—whether plaintiff has demonstrated actual or imminent ‘injury in fact’ of a concrete and particularized nature—the Court homed in on Massachusetts’s status as owner of much of the commonwealth’s shore land.”).
249 See Meltz, supra note 247, at 4 (“Having described petitioners’ favored position with regard to standing, it was curious that the Court then undertook a fairly traditional standing analysis.”); P. Leigh Bausinger, Note, Welcome to the (Impenetrable) Jungle: Massachusetts v. EPA, the Clean Air Act, and the Common Law of Public Nuisance, 53 Vill. L. Rev. 527, 559 (2008).
250 See Zdeb, supra note 99, at 1067 n.54 (recognizing the potential for misinterpretation of Massachusetts v. EPA’s “murky” standing analysis).
sent. However, the message of *Massachusetts v. EPA* is clear: injury from global warming is a cognizable claim for standing purposes.

Based on the Supreme Court’s acceptance of standing based on global warming injury, global warming plaintiffs will likely satisfy the injury prong of standing. Since the Court already decided in *Massachusetts v. EPA* that loss of coastline from rising tides brought on by global warming is a “concrete” and “particular” injury under the *Lujan* test, it would likely agree with the Fifth Circuit that damage from increased storm severity, another effect of global warming, is a sufficiently particularized injury. In fact, the *Massachusetts* Court specifically recognized the connection between rising ocean temperatures from global warming and an increase in the “ferocity of hurricanes.”

Proving redressability by money damages in a future case may be more difficult. The *AEP* plaintiffs will not encounter this problem, as they seek an injunction, but money damages were requested in *Comer*

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251 See *Massachusetts v. EPA*, 549 U.S. at 539 (Roberts, C.J., dissenting).

The Court asserts that Massachusetts is entitled to “special solicitude” due to its “quasi-sovereign interests,” . . . but then applies our Article III standing test to the asserted injury of the Commonwealth’s loss of coastal property. . . . In the context of *parens patriae* standing, however, we have characterized state ownership of land as a “nonsovereign inter[e]t[ ] . . . .”

Id.

252 See Ward, supra note 245, at 1 (“I think [Massachusetts v. EPA] will be used as a springboard for further relaxed standards [of standing] in the lower courts.”); Bausinger, supra note 248, at 556, 558–59.


254 *Massachusetts v. EPA*, 549 U.S. at 522.

255 See *Massachusetts v. EPA*, 549 U.S. at 521–24 (recognizing the link between warmer ocean temperatures and an increase in storm severity); *Comer v. Murphy Oil USA*, 585 F.3d 855, 863 (5th Cir. 2009).


257 See *Comer*, 585 F.3d at 863, 867.

and could be a part of future climate change cases. Since *Massachusetts v. EPA* granted the Commonwealth merely a procedural remedy—the ability to challenge the EPA’s denial of their rulemaking petition—if future climate change plaintiffs request money damages, the Court may hold that the injury of global warming plaintiffs cannot be redressed by money damages.\(^{259}\) However, for standing purposes, the Court does not need to actually give the plaintiffs money; it simply must decide whether money would alleviate their injury in some way.\(^{260}\) Although, arguably, money will not lessen the effects of global warming, it will allow the plaintiffs the ability to rebuild and restore the property they lost.\(^{261}\) No court has ever granted money damages for injury from global warming. However, the Supreme Court need only look to the whole of tort law for the principle that an award of money damages can and does redress injuries from a myriad of sources.\(^{262}\)

*Massachusetts v. EPA* also stands for the principle that any contribution to global warming through greenhouse gas emissions is sufficient to prove causation in the standing analysis.\(^{263}\) The Fifth Circuit panel in *Comer* relied directly on the Supreme Court’s words in *Massachusetts v. EPA* that the EPA’s “meaningful contribution” to global warming by refusing to regulate greenhouse gases sufficiently proved traceability.\(^{264}\) The defendants’ alternative argument that “the causal link between emissions, sea level rise, and Hurricane Katrina is too attenuated,” was also dismissed because of its similarity to a failed argument in *Massachusetts v. EPA*.\(^{265}\) The Fifth Circuit relied also on the Supreme Court’s acceptance of the link between greenhouse gas emissions and global warming.\(^{266}\) It recognized that not only had the Court accepted “a causal chain virtually identical” to that of the plaintiffs, but it had gone one step further and recognized injury stemming from the EPA, an

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\(^{259}\) *Massachusetts v. EPA*, 549 U.S. at 525–26. Redressability was not contested by the defendants in *Comer*, so the court held that if the injury was caused by defendants, it could be redressed by compensatory and punitive damages. *Comer*, 585 F.3d at 863–64.


\(^{263}\) *Massachusetts v. EPA*, 549 U.S. at 523–25.

\(^{264}\) *Comer*, 585 F.3d at 865 (citing *Massachusetts v. EPA*, 549 U.S. at 525).

\(^{265}\) *Id.*

\(^{266}\) *Id.* (citing *Massachusetts v. EPA*, 549 U.S. at 521–24).
agency that did not directly emit the greenhouse gases.\textsuperscript{267} It is clear from this comparison that the Fifth Circuit agreed with the Supreme Court’s treatment of the standing issue for global warming cases.\textsuperscript{268} Because of the stark similarity between the injury and causation alleged in \textit{AEP, Comer,} and \textit{Massachusetts v. EPA,} it is likely that the Supreme Court would agree with the Fifth Circuit panel’s 2009 ruling when it hears \textit{AEP}\textsuperscript{269}

**B. The Final Barrier: Proof of Causation**

Despite the recent successes of global warming plaintiffs on the preliminary issues of justiciability and standing, they have yet to encounter the most formidable barrier of all: proof on the merits.\textsuperscript{270} The difference between the burden of proof for standing at the pleading stage and the burden for proof on the merits is significant.\textsuperscript{271} At the pleading stage, the plaintiffs only need to make general allegations of harm, as yet unsupported by specific facts.\textsuperscript{272} The plaintiffs in \textit{Comer} succeeded before the Fifth Circuit panel based on this lowered bar to standing.\textsuperscript{273} However, the court stopped short of addressing the merits of the claims, and thus, of awarding damages at this stage.\textsuperscript{274} On the merits, global warming plaintiffs would be forced to support their claims by a preponderance of the evidence.\textsuperscript{275}

Proximate cause would have presented the greatest obstacle to the \textit{Comer} plaintiffs because the chain of causation from defendants’ emission of greenhouse gases, to global warming, to increased storm intensity, to Hurricane Katrina, to damaged property, was extremely attenuated.
In fact, the Fifth Circuit judge in Comer intimated that he would have affirmed a dismissal on proximate cause grounds. Similarly, District Court Judge Senter foresaw “daunting evidentiary problems” for the plaintiffs if they sought to prove causation by a preponderance of the evidence.

The Supreme Court, in addressing proximate cause in the AEP case, will likely recognize that the early pollution cases analogized by global warming plaintiffs are in fact quite different when it comes to causation. In Georgia v. Tennessee Copper Co., for example, the chain of causation extended directly from the defendants’ isolated emission of “noxious gas” to the effect the gas had on the neighboring state. In contrast, global warming stems from an incalculable number of sources and affects the entire planet in ways that are still not fully understood by scientists. For global warming plaintiffs, the defendants’ emission of greenhouse gases is not the “but-for” cause of the injury-causing effect of global warming. For example, in Comer that was Hurricane Katrina. Hurricanes are natural processes that would occur even without global warming. The Comer plaintiffs’ contribution argument, while sufficient for standing, would likely be insufficient to prove tort proximate cause. Since no global warming claim brought under a tort cause of action has yet been litigated on the merits, global warming plaintiffs will be left without a means of supporting their tenuous claims.

**Conclusion**

Within the span of nine months, the Fifth Circuit flung open and then slammed shut the doors of the court on plaintiffs seeking money damages from contributors to global warming. But all is not yet lost. As one of the Comer plaintiffs mused,

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276 Id.
277 See Comer, 585 F.3d at 864.
280 Tenn. Copper Co., 406 U.S. at 236.
282 See Comer v. Murphy Oil, USA, 585 F.3d 855, 858 (5th Cir. 2009).
284 See AM. BAR ASS’N, supra note 26, at 184; Donald, supra note 198.
Although the victory was taken away from these citizens in the most unusual and unfortunate of ways, the refusal of the United States Supreme Court to take action in no way erases the words so eloquently written by Judge James Dennis, nor does it diminish this first effort as a guide and an inspiration for the future.\footnote{Steven D. Cook, Dismissal of Climate Change Tort Lawsuit Stands as Supreme Court Denies Review, 42 Env’t Rep. (BNA) 55 (Jan. 14, 2011).}

Should the Supreme Court accept the challenge that thirteen Fifth Circuit judges shirked, and choose to resurrect the lost panel decision for American Electric Power, Co. (AEP) and its progeny, it could mean a flood of citizen litigation for climate change.\footnote{See \textit{id.}}

In the past two decades, the effects of global warming have grown increasingly more bothersome, swallowing coastlines with rising tides, raising temperatures in already arid regions, and creating some of the most ferocious storms in history.\footnote{Wynn, supra note 16. See generally IPCC SUMMARY, supra note 7 at 2–8 (citing scientific findings of the varied effects of global warming on the planet).} These effects have caused injury to millions of people and their property, and will only continue to wreak further havoc.\footnote{Bill Blakemore, Global Warming Expert Fears “Refugee Crisis,” ABC News (Apr. 2, 2007), \url{http://abcnews.go.com/WNT/GlobalWarming/story?id=2999764&page=1}.} Once upon a time, the standing analysis was strict.\footnote{See notes 69–78 and accompanying text.} Plaintiffs could not gain access to the courts with an attenuated claim of causation.\footnote{See Lujan v. Defenders of Wildlife, 504 U.S. 555, 560 (1992) (“there must be a causal connection between the injury and the conduct complained of—the injury has to be ‘fairly . . . trace[able] to the challenged action of the defendant ’”) (citing Simon v. E. Ky. Welfare Rights Org., 426 U.S. 26, 41–42 (1976)).} However, the Supreme Court’s landmark decision in \textit{Massachusetts v. EPA} turned the tables in favor of global warming plaintiffs.\footnote{See generally \textit{Massachusetts v. EPA}, 549 U.S. 497 (2007) (accepting injury from global warming as a justiciable claim).} In recognizing a seemingly endless chain of causation as sufficient to confer standing, the Supreme Court gave its imprimatur to future global warming suits.\footnote{See Ward, supra note 245, at 1; Bausinger, \textit{supra} note 248, at 558–59.} The problem is, standing does not end the inquiry. Once global warming plaintiffs drag their long chains of causation into a merits battle, their arguments may not have the same force. Under a higher proximate cause standard, “fair traceability” is no longer a viable connection between the defendants’ actions and the...
plaintiffs’ harm. The chain will break under the strain of tort causation.

For the meantime, the Supreme Court has not ruled on any tort global warming cases. AEP still stands as a triumphant beacon of judicial activism, lighting the way for cases like Comer that came closer than ever to victory against global warming contributors. The Second Circuit in AEP marked a departure from the strict standing test of Lujan, as would Comer, had the 2009 panel decision been left intact. Ultimate resolution of global warming tort suits in favor of the plaintiffs would likely encourage more victims of hurricanes and coastal inundation to bring suit against local greenhouse-gas-emitting villains. The time has come for the courts to choose the role they will play in defending the Earth from global warming.

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294 See Lujan II, 504 U.S. at 561; Comer v. Murphy Oil USA, 585 F.3d 855, 862 (5th Cir. 2009).
295 See Donald, supra note 198.
296 Cook, supra note 211.
298 Rivkin, Jr. et al., supra note 148, at 14.
Abstract: Environmental cleanup for contaminated properties is a complicated process, with liability existing at both state and federal levels. For many years, the federal government has largely deferred responsibility for the cleanup of contaminated properties to the states. New Jersey has recently privatized several aspects of its environmental cleanup process. Prior to privatizing the state cleanup process, New Jersey had refined the typical state model of a Voluntary Cleanup Program by creating the Brownfield Developmental Area initiative. The Brownfield Developmental Area initiative was extremely effective, yet it was expensive to administer. As a result, New Jersey implemented the Site Remediation Reform Act, which totally eliminated the state’s Voluntary Cleanup Program, and privatized the cleanup process. This note argues against some of the policies associated with the privatization of environmental cleanup, and suggests several courses of action that can be implemented to maximize privatized site cleanup.

Introduction

In May 2009, the New Jersey legislature passed the Site Remediation Reform Act (SRRA), a piece of legislation that has drastically changed the way environmentally contaminated properties are cleaned up inside the state. This legislation departs from previous state-run programs, as New Jersey joins a growing number of states who have privatized different aspects of environmental cleanup. These changes came as a direct result of state budget cuts that left the New Jersey Department of Environmental Protection (NJ DEP) unable to continue administering its costly state-run Voluntary Cleanup Program (VCP).

1 Site Remediation Reform Act (SRRA), N.J. Stat. Ann. § 58:10C-1 to -29 (West 2010).
2 See id. § 58:10B-1.3 (West 2010) (“A person who initiates a remediation of a contaminated site . . . shall . . . hire a licensed site remediation professional to perform the remediation . . . .”).
3 Interview with Kennith Clue, N.J. Dep’t of Envtl. Prot. (Jan. 15, 2010).
Site cleanup is a complicated process with layers of liability existing at both state and federal levels. Over the course of the last forty years, the interplay between federal and state liability has become quite settled, and the federal government has deferred site cleanup to state programs. In New Jersey these state programs have been quite progressive. The Spill Compensation and Control Act (Spill Act) of 1976 was the first comprehensive cleanup program in the nation. Similarly, New Jersey was one of the first states to enact a VCP that built on the Spill Act by maintaining its effective attributes, while solving liability problems that had arisen under the older model. Finally, New Jersey created the Brownfield Development Area (BDA) initiative, a program that takes a holistic approach to remediating contaminated sites. The wants and needs of entire communities are addressed more completely by this initiative, and it is seen as the most comprehensive program for addressing the problems associated with contaminated “brownfield” sites.

However, most of these changes and advancements have been removed by SRRA, and the liability scheme in New Jersey is now what it was in 1976 under the Spill Act. The purpose of this Note is to explore the history of remediation in New Jersey, identify what recent changes mean for that history, and propose how to maximize the potential of New Jersey remediation under these changes. Part I explores the first instances of regulation for contaminated sites at both the state and federal level. Part II identifies the issue of brownfields that came about

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9 See id. The EPA definition of a brownfield is “real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.” CERCLA, 42 U.S.C. § 9601(39)(A). Similarly, the New Jersey definition is, a “former or current commercial or industrial site that is currently vacant or underutilized and on which there has been, or there is suspected to have been, a discharge of a contaminant.” SRRA, N.J. Stat. Ann. § 58:10B-1 (West 2010).
10 See id. § 58:10B-1.3.
11 See infra Part I.
because of the enactment of the regulations examined in Part I. Part III explains the response efforts taken by state and federal legislatures to combat the problems identified in Part II. Part IV analyzes a new program that provides a comprehensive regulatory solution that surpasses previous remediation efforts in dealing with all aspects of a cleanup. Part V discusses the cancellation of a prominent remediation program and examines what changes the cancellation brings to New Jersey. Finally, Part VI analyzes the changes to remediation in New Jersey, discusses how those changes will affect the state, and explains how the changes can be implemented to maximize the goals of site cleanup.

I. REGULATING BROWNFIELDS AT FEDERAL AND STATE LEVELS

A. Liability Under the Federal Scheme

Starting with the publication of *Silent Spring* in 1962, and moving into the 1970s and 1980s, public perception of environmental issues forced Congress to create legislation to protect the environment. One early piece of important environmental legislation was the Resource Conservation and Recovery Act (RCRA) of 1976. Although RCRA is an important piece of environmental legislation, it is only designed to monitor hazardous waste production, and does not extend to sites already contaminated with other materials. In response to what some commentators have referred to as a “gaping loophole” in RCRA’s scope, Congress passed the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. The hallmark of CERCLA is its overarching liability scheme—its ability to create broad liability for cleanup.
CERCLA, also known as the “Superfund,” takes sites that have been identified as contaminated and applies strict guidelines on what type of cleanup each brownfield site requires. The “fund” part of Superfund refers to the EPA’s ability to pay for any emergency remediation or cleanup for a site that poses imminent danger to people or the environment. However, the EPA is more apt to force potentially responsible parties (PRPs) to pay for remediation than it is to empty its own coffers. The concept of PRPs is the central tenet of CERCLA’s ability to impose broad liability. Many different individuals can be considered PRPs, and they are jointly and severally liable for the costs of removal and remediation.

On its face, CERCLA appears to be concerned mostly with remediation of polluted property; however, by structuring the system of liability the way it did, the Act also made future releases less likely. Knowing that business interests would factor into remediation costs, the drafters of CERCLA intended lenders and insurers to make conservative financial decisions when dealing with borrowers partaking in projects with a potential for environmental pollution. Holding former, current, and future owners of a property potentially responsible, CERCLA created a system where an incredibly broad group of individuals could be held liable for cleanups with the potential for a large remediation cost.

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22 See Shari Shapiro, The Effectiveness of Pennsylvania’s Act 2: Are Good Mechanics Enough?, 24 Temp. J. Sci. Tech. & Envtl. L. 441, 444 (2005) (“The remedial actions must conform to the National Contingency Plan (NCP), which details the procedures for clean up of contaminated sites, including how much money should be spent to clean up the site and the extent of removal, remediation, and other actions.”).

23 See CERCLA 42 U.S.C. § 9611(i).

24 See McMorrow, supra note 4, at 1093–94 (explaining that CERCLA grants the EPA the power to obtain the cost of remediation from PRPs, or to force the PRPs to conduct their own remediation).


26 See id. (stating that PRPs of contaminated property include: (1) the owner and operator of such a facility, (2) any person who owned or operated the facility at the time hazardous materials were disposed of, (3) any person who arranged for the disposal or treatment of who arranged for transport thereof, and (4) any person who accepted hazardous substances for transport or disposal).


28 Espinosa, supra note 17, at 7–8.

29 See id.

30 See CERCLA 42 U.S.C. § 9607(a); Higgins, supra note 27, at 240.
B. Liability Under New Jersey State Acts: Spill Act & Environmental Cleanup Responsibility Act

Around the time the federal government began to pass environmental protection legislation, states began a similar effort. New Jersey passed two major statutes that in the late 1970s and early 1980s, the Spill Act of 1976 and the Environmental Cleanup Responsibility Act (ECRA) of 1983. The Spill Act actually predated the passage of CERCLA, and ECRA predates analogous disclosure amendments incorporated into CERCLA. Both the Spill Act and ECRA are enforced by the NJ DEP, the state version of the EPA.

1. The Spill Act

Despite predating CERCLA, both the Spill Act and ECRA bear striking resemblances to it, with the Spill Act actually serving as a model for CERCLA. Between the Spill Act and ECRA, the Spill Act bears the most resemblance to CERCLA, as the Spill Act sets the liability and remediation provisions that extend to polluted sites, including sites with petroleum spills. Like CERCLA, the Spill Act has a “superfund” out of which the state can pay for cleanup in emergency situations, and for cleanup of abandoned sites where no responsible parties can be identified. Essentially, the Spill Act’s superfund program mirrors CERCLA’s independent legal authority to pursue remediation and restoration claims. In addition to paying for emergency situations, if responsible parties have been identified, and they fail to participate in the cleanup, the Spill Act permits the NJ DEP to recover three times the money it spent cleaning the contaminated site. Finally, responsible parties who
fail to comply with NJ DEP remediation mandates may be stripped of any license or permit for operating hazardous or solid waste facilities.\footnote{Id.; see also Kathleen Marchetti & James F. Fitzsimmons, Trustee, Executor and Fiduciary Liability for Environmental Contamination in New Jersey, 21 SETON HALL LEGIS. J. 347, 349 n.11 (1997).}

Although the Spill Act mirrors the remediation structure imposed against responsible parties under CERCLA, it is unlike CERCLA in that it has no defined set of responsible parties.\footnote{Marchetti & Fitzsimmons, supra note 40, at 349.} Through judicial interpretation, the New Jersey courts have produced a list of potentially responsible parties similar to CERCLA’s.\footnote{See id. (New Jersey has a “crafted definition of ‘responsible’ person that includes owners and operators of businesses and real property, those who owned the hazardous substances, and more importantly, persons who have no moral culpability for the conditions, other than ownership or control of the facility.”).} The Spill Act was amended in 1993 to clarify some of the existing judicial interpretations of who responsible parties were.\footnote{See Spill Act § 58:10-23.11g4.} This, however, did little to reduce the traditional liability against all former, current, and future owners.\footnote{See id. (making no changes to traditional owner/operator liability).} Essentially, the amendments only served to clarify what levels of management could be held as a responsible party,\footnote{See id.; see also Marchetti & Fitzsimmons, supra note 40, at 350 (“‘Active participation’ and ‘participation in . . . management’ are specifically defined to mean ‘actual participation in management or operational affairs by the holder of the security interest.’ Liability, for those who have the ‘mere capacity or ability to influence’ or control operations, but do not exercise that ability, is specifically excluded.”).} as well as limiting the liability of those who receive land as part of a trust or estate.\footnote{See Marchetti & Fitzsimmons, supra note 40, at 351–52.} Having a liability scheme similar to CERCLA means the Spill Act has virtually identical problems dealing with developer fear of remediation costs.\footnote{See infra Part III.}

2. ECRA

ECRA, which has since been amended to be called the Industrial Site Recovery Act (ISRA), also had an impact on the creation of brownfields in New Jersey. The original focus of ECRA, and the contemporary idea driving ISRA, is narrower in scope than the Spill Act.\footnote{Compare ISRA, N.J. STAT. ANN. § 13:1K-6 (West 2010), with Spill Act § 58:10-23.11 (ISRA is limited to the closure of contaminated industrial sites, and the Spill Act is a broader environmental regulation).} ECRA, and now ISRA, specifically deals with the sale, closure, and transfer of indus-
ECRA, and now ISRA, requires that industrial sites obtain approval before they were sold, closed, or transferred to different ownership.\(^50\) To obtain the NJ DEP’s approval, the owner of the site is required to take one of two actions.\(^51\) An owner’s first option is to submit a declaration that there was either no discharge of a hazardous substance at that site, or that any discharge had been cleaned according to state standards.\(^52\) An owner’s second option is to submit a cleanup plan to the DEP, listing the hazardous materials present and stating the owner’s strategy for remediation, and to post a bond to guarantee the cleanup.\(^53\) If a site owner fails to submit a declaration or cleanup plan, he is either fined or has his property transfer voided.\(^54\)

Because of complaints about ECRA’s clarity and application process,\(^55\) in 1993, the New Jersey Legislature amended the Act, renaming it ISRA.\(^56\) ISRA has not veered from the original purpose of ECRA, to enforce environmental cleanup during the sale, closure, or transfer of real property.\(^57\) Rather, the change to ISRA is an attempt to remedy the problems associated with the clarity of ECRA’s language.\(^58\) Some glaring examples of ECRA’s failure to define essential language are evidenced by the imprecise definition of “industrial establishment” and “closing, terminating or transferring operations.”\(^59\) In fact, the failure to give language specific meaning and parameters “resulted in the over inclusion of certain non-hazardous waste or substance related operations.”\(^60\) The failure to use clear language also added uncertainty to ECRA.\(^61\) The amendments that changed ECRA into ISRA also gave IS-


\(^{50}\) See ISRA § 13:1K-9.

\(^{51}\) See id.

\(^{52}\) See id.


\(^{55}\) D’Alonzo et al., supra note 53, at 55 (“The problems with ECRA included imprecise statutory definitions, lack of definitions for key terms, excessive costs, and procedural delays.”).

\(^{56}\) ISRA § 13:1K-6.

\(^{57}\) See D’Alonzo et al., supra note 53, at 58.

\(^{58}\) See id.

\(^{59}\) See id. at 55–56.

\(^{60}\) Id.

\(^{61}\) See id. at 56 (“ECRA . . . left many of its key terms undefined, creating significant uncertainty as to ECRA’s bite. The fact that ‘owner’ and ‘operator’ were not defined created ambiguity as to the chain of responsibility under ECRA . . . .”).
RA more power; important among these powers was the authority to initiate the state’s original Voluntary Cleanup Program (VCP).  

II. Problems Identified with CERCLA, Spill Act, and ECRA/ISRA

While CERCLA and the Spill Act have clearly been successful in identifying sites in need of remediation and forcing cleanup, there have been some negative byproducts of this type of environmental legislation. Most problems growing out of CERCLA and the Spill Act deal with their broad liability schemes and the ability to hold parties responsible, regardless of their role in actual contamination. Many would-be sellers and developers were scared of CERCLA’s wide net of liability, and did not want to be responsible for a high-cost remediation. The more likely a developer is to be held liable, the less likely he would participate in a site remediation project. This fear of liability has caused the creation of many brownfields—vacant, contaminated sites—with some estimates reaching 450,000–500,000 sites nationwide and upwards of 10,000 sites in New Jersey alone.

A. Social Problems Associated with Brownfields

One of the most glaring problems with brownfields is that their existence stymies and depresses entire communities. First, and most importantly, these sites are considered brownfields because hazardous contaminants are either known or suspected to be present. These chemicals and pollutants, without remediation, are capable of disbursing and releasing into surrounding areas, placing communities of in-
nocent individuals at risk.72 Additionally, brownfields are an eyesore and are typically concentrated in poor, urban neighborhoods.73 These urban areas are typically populated by low-income minority groups.74 The cyclical nature of poverty is exacerbated by the closure of industrial sites left vacant for fear of CERCLA, Spill Act, and ECRA liability.75 When a factory or plant closes, the local work force no longer has employment, and this results in both depressed job markets and depressed tax bases.76 The tax base becomes depressed because of the immediate loss of a large site paying city or municipal property taxes.77

However, simply because there is difficulty in developing urban brownfields does not mean that new development does not persist; instead, new developments are pushed away from urban centers, into the previously unused greenfields of suburban and exurban areas.78 By building on previously unused areas, the environmental problem is made exponentially worse; not only is a polluted site languishing, but greenfields and the benefits associated with such a space are removed.79 The process of building on previously open space is linked to the economic detriment of those communities surrounding brownfields.80 Employment sprawls with the development of new industrial and office parks, forcing the urban employees originally affected by the closure of plants within their communities to either leave those communities or make an onerous commute.81

B. Financial Problems

With the enactment of broad liability, it became less expensive for many property owners to let a site languish in disuse than it was to re-

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72 McMorrow, supra note 4, at 1088.
73 Singband, supra note 7, at 317.
74 Id.
75 See Rubenstein, supra note 70, at 150.
76 Id.
77 See id.
78 See Singband, supra note 7, at 339 (discussing the impacts of “urban sprawl,” one such impact being the destruction of previously untouched land that is known as a “greenfield”).
79 See McMorrow, supra note 4, at 1095–96 (defining greenfields as “previously undeveloped areas on the outskirts of urban locales”).
80 See Rubenstein, supra note 70, at 150.
81 See id. (“As the job base shifts to locations farther away from cities and residential areas, the work force becomes more dependent on automobiles for transportation, because mass transit cannot economically reach outlying areas.”).
mediate it, or be exposed to liability during a sale.\textsuperscript{82} In New Jersey, the liability associated with a sale is even higher due to the rigorous standards under the current ISRA and former ECRA.\textsuperscript{83} The problem of brownfields extends past the owner/seller paradigm, and reaches to buyers, developers, and financers.\textsuperscript{84} Developers who would potentially purchase a brownfield in an effort to revitalize a community eyesore would be jointly and severally liable for all remediation costs of that site, even if the developer had no involvement with the original dispersal of hazardous materials.\textsuperscript{85} The potential for spending an incredible sum of money on remediation for land that the developer did not pollute was enough to cause interested developers to walk away.\textsuperscript{86}

Under CERCLA, lenders are less likely to lend money to developers for two distinct reasons: the inability for a lender to foreclose on a polluted property used as collateral in a secured transaction, and the general disinterest in lending to developers that have the potential to be driven into bankruptcy during a forced remediation.\textsuperscript{87}

Brownfields illustrate that there are both financial and social pitfalls to the liability scheme that CERCLA and analogous New Jersey acts set in place during the late 1970s and early 1980s.\textsuperscript{88} The brownfield phenomenon became clearly linked with urban decay,\textsuperscript{89} and when this was clear to federal and state legislatures, they began to take steps to fix the problem.\textsuperscript{90}

\begin{itemize}
  \item \textsuperscript{82} See Espinosa, supra note 17, at 8–9 (“Property owners attempting to sell unwanted facilities may be faced with large testing costs and potential cleanup bills that may render a ‘hold’ decision to be the most economically sound.”); Pippin, supra note 68, at 596.
  \item \textsuperscript{83} See ISRA, N.J. STAT. ANN. § 13:1K-6 (West 2010).
  \item \textsuperscript{84} See Espinosa, supra note 17, at 7–8; Scott Sherman, Government Tax and Financial Incentives in Brownfields Redevelopment: Inside the Developer’s Pro Forma, 11 N.Y.U. ENVT'L. L.J. 317, 321 (2003).
  \item \textsuperscript{86} See Espinosa, supra note 17, at 8–9 (“Among the litany of potential reasons for lack of use, however, PRP liability reigns supreme among contenders.”).
  \item \textsuperscript{87} See Sherman, supra note 84, at 321–22 (“Brownfield projects—like all other real estate ventures—cannot proceed if . . . the developer cannot obtain financing.”); Pippin, supra note 68, at 591.
  \item \textsuperscript{88} See Espinosa, supra note 17, at 8 (describing the unintentional “chilling effect” of CERCLA and state acts); Singband, supra note 7, at 339.
  \item \textsuperscript{89} Pippin, supra note 68, at 596 (listing the characteristics of urban decay as “depopulation, high unemployment, increased crime rates, poverty, and the decline of urban-poor and minority neighborhoods”).
  \item \textsuperscript{90} See id.; see also Higgins, supra note 27, at 245.
\end{itemize}
III. FEDERAL AND STATE RESPONSES TO BROWNFIELD PROBLEMS

A. CERCLA Amendments and the Brownfields Act

The federal response to the brownfields crisis was a gradual process starting in the late 1980s, building towards a major CERCLA amendment—the Small Business Liability Relief and Brownfields Revitalization Act (Brownfields Act) of 2002.91 Previous to enacting the Brownfields Act, Congress had made some strides towards minimizing specific forms of purchaser liability and encouraging development of brownfields.92 The three most important adjustments to CERCLA before the Brownfields Act are: (1) the addition of a “third party defense”; (2) the “innocent landowner defense”; and (3) amendments to the EPA’s settlement authority.93

The “third party defense” allows indemnity for landowners who can demonstrate several factors that prove the contamination in question was the fault of a third party.94 In 1986, Congress built on the “third party” defense by creating the “innocent landowner defense.”95 This defense is applicable to defendants who can demonstrate that the property’s contamination occurred before the defendants purchased the land, and that prior to the purchase the defendants had no reason to believe that any contamination existed.96 Finally, in 1989, Congress broadened the scope of the EPA’s authority to enter into settlements.97 The 1989 changes deal primarily with entering into settlements with “de minimus landowners and generators,”98 but the ability to enter into settlements is the logical precursor to the EPA entering into a Memoranda

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92 See McMorrow, supra note 4, at 1096–99.
93 See id. at 1097–98.
94 CERCLA, 42 U.S.C. § 9607(b)(3) (2006) (defendant landowner must “establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom were caused solely by . . . an act or omission of a third party other than an employee or agent of the defendant”); see McMorrow, supra note 4, at 1097 (requiring that “(1) the contamination arose solely from acts or omissions of a third party with whom [defendant landowner] is not in a contractual relationship, (2) the owner exercised due care regarding the hazardous substances involved, and (3) the owner ‘took precautions against foreseeable acts or omissions of [a] third party’ . . . .”) (citing CERCLA, 42 U.S.C. § 9607(b)(3)).
95 See CERCLA, 42 U.S.C. § 9601(35); McMorrow, supra note 4, at 1097.
96 See CERCLA, 42 U.S.C. § 9601(35); McMorrow, supra note 4, at 1097 (emphasizing the Act’s requirements of due care and the need to conduct “all appropriate inquires”).
97 See CERCLA, 42 U.S.C. § 9622(g); McMorrow, supra note 4, at 1098.
98 See McMorrow, supra note 4, at 1098 (describing how the EPA can enter into a settlement where a PRP pays only a specific amount for remediation in return for indemnity).
of Agreement (MOA) with individual states under the Brownfields Act.99

These changes eliminated purchaser liability, but only in narrow instances.100 The changes during the 1980s laid the ground work for Congress’s most substantial attempt at solving the brownfield problem—the Brownfields Act.101 The Brownfields Act made minor changes to existing CERCLA liability and revolutionized the manner in which cleanups were to be overseen.102 Some of the more superficial changes to CERCLA were changes to the “innocent land owner” exception, as well as the additions of “contiguous property owner” and “bona fide prospective purchaser” exemptions.103 However, the most groundbreaking change that occurred as a result of the Brownfields Act was Congress’s decision to defer almost all remediation efforts to state voluntary programs.104

Until the passage of the Brownfields Act, developers completing remediation programs under state VCPs had a formal set of liabilities with the state; however, the possibility for federal action under CERCLA persisted.105 The Brownfields Act is structured so that a site which has been, or is in the process of being remediated under a state program will not be subject to administrative or cost recovery actions by the EPA.106 In fact, this Act applies to all state programs, despite the great disparity in remediation requirements between the programs; there is no specific set of standards required by the EPA, nor is there an approval process.107 One of the driving factors behind the Brownfields Act was “slow-moving federal initiatives and a general lack of direction.”108 The EPA did not want to continue this trend, so instead of creating a

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100 See McMorrow, supra note 4, at 1096–99.
101 See id. at 1101.
102 See id. at 1101–02.
103 See id. at 1102–09.
104 See Higgins, supra note 27, at 244–45. While state VCPs will take over many sites—the most badly contaminated sites—that on the National Priorities List (NPL) will remain the concern of the EPA. McMorrow, supra note 4, at 1100.
105 See McMorrow, supra note 4, at 1113. A VCP is a program that “allows any party to voluntarily remediate non-priority contaminated sites that pose no immediate threat to human health or the environment.” Singband, supra note 7, at 319 (internal quotations omitted).
107 See Fox & McIntyre, supra note 106, at 26–27.
108 McMorrow, supra note 4, at 113.
complicated state application process, it chose to defer to states with the exception of a narrow set of “reopeners” designed to deal with problem sites.\textsuperscript{109} As a result, the EPA will not interfere with an “eligible site” remediated through a state plan except if a “reopener” is triggered.\textsuperscript{110}

Additionally, the EPA will enter into MOAs with each state, documenting its commitment not to pursue enforcement actions at those sites cleaned up under state VCPs.\textsuperscript{111} Since the passage of this Act, there has been an increase in the number of developers and landowners who voluntarily come forward for remediation under their state programs.\textsuperscript{112} Redevelopment initiatives now have clarity, and can proceed in a state-centric manner. By following a state VCP, developers will no longer be concerned with being hit by an EPA suit above and beyond what was agreed to in a developer-state agreement.\textsuperscript{113} Once a developer completes the VCP, it is absolved of virtually all liability.\textsuperscript{114}

B. New Jersey’s Initial Response: The New Jersey VCP

New Jersey enacted its VCP in 1992, making it an early model for other states’ cleanup programs.\textsuperscript{115} Enacted pursuant to ISRA, the VCP is operated by the NJ DEP.\textsuperscript{116} Like the federal Brownfields Act, the New Jersey VCP is not applicable to all sites;\textsuperscript{117} rather, it is aimed at sites that have not been identified as “priority” sites, and therefore do not have the potential for immediate health or environmental effects.\textsuperscript{118} After the Brownfields Act delegated almost all authority of brownfield remediation to state VCPs, it became the job of each VCP to structure the

\begin{footnotes}
\item[109] See Fox & McIntyre, \textit{supra} note 106, at 27.
\item[110] CERCLA 42 U.S.C. § 9601(41) (defining an “eligible response site”); 42 U.S.C. § 9628(b)(1)(B) (listing reopening factors); see Fox & McIntyre, \textit{supra} note 106, at 27 (summarizing types of sites that do not qualify as an “eligible response site” and listing the “reopener” factors).
\item[111] See McMorrow, \textit{supra} note 4, at 1115.
\item[112] Id. at 1115 (attributing this to “The EPA’s commitment to memoranda of agreement, the Brownfields Act, and the realistic unlikelihood that the EPA will expend its limited resources pursuing a site that a party has already remediated under a state program . . .”).
\item[113] See id. (discussing how the EPA and state VCPs are now “partners”).
\item[114] See id.
\item[117] \textit{Voluntary Cleanup Program, N.J. Dep’t of Envtl. Prot.}, \textit{supra} note 99.
\item[118] See Singband, \textit{supra} note 7, at 319.
\end{footnotes}
programs in such a way that they would spur brownfield redevelopment—the original purpose of the state and federal amendments.\textsuperscript{119}

In order to attract developers, the New Jersey VCP created a flexible program—one that allowed developers to clean up a site at whatever pace they chose.\textsuperscript{120} The developer-scheduled pacing is established in a MOA entered into between the developer and New Jersey.\textsuperscript{121} Filing for an MOA is the first step in the New Jersey VCP process and that MOA not only governs the remediation schedule, but additionally stipulates the scope of cleanup for the site in question.\textsuperscript{122} Depending on the intended use, the level of remediation required can be negotiated in the MOA; however, the NJ DEP does have a list of “technical requirements” for site remediation.\textsuperscript{123} Under an MOA, a developer who once feared that investigating a potential site for development would subject him to liability can conduct a partial investigation or remediation without penalty.\textsuperscript{124}

After entering into the MOA with NJ DEP, the next step for a developer is to actually remediate the site within the MOA’s stipulated guidelines.\textsuperscript{125} After a site is remediated within those guidelines, the NJ DEP will issue a No Further Action Letter (NFAL).\textsuperscript{126} The NFAL is the embodiment of the NJ DEP’s determination that the completed remediation is acceptable, and that it foresees no need for future remediation.\textsuperscript{127} Specifically, the state statute indicates that such a letter is evidence that there are no discharged contaminants at the site, or that the contaminants once present have been acceptably removed.\textsuperscript{128} In most circumstances, a covenant not to sue accompanies the NFAL.\textsuperscript{129} The

\textsuperscript{119} See id. at 320 (“The [NJ] VCP went a long way toward providing developers with an incentive to touch brownfields.”).
\textsuperscript{120} See Eisen, supra note 115, at 737 (describing flexibility as “a critical element” of the NJ VCP).
\textsuperscript{121} N.J. ADMIN. CODE § 7:26C-2.1 (2002); see Singband, supra note 7, at 319.
\textsuperscript{122} N.J. ADMIN. CODE § 7:26E.
\textsuperscript{123} Eisen, supra note 115, at 737.
\textsuperscript{124} See Singband, supra note 7, at 319.
\textsuperscript{125} Voluntary Cleanup Program, N.J. DEP’T OF ENVTL. PROT., supra note 99.
\textsuperscript{126} See Singband, supra note 7, at 319.
\textsuperscript{127} N.J. ADMIN. CODE § 7:26C-2.6(a).
\textsuperscript{128} See Singband, supra note 7, at 319–20. Some parties liable under different acts will receive an NFAL, but no covenant not to sue. Id. Specifically, “[a] party liable under the Spill Act is not eligible for a covenant not to sue. . . . However, persons who acquire property after a discharge occurs may obtain protection against state-imposed civil liability after a cleanup is completed and against private third-party liability upon commencement of site remediation.” See Norman W. Spindel, N.J. Environmental Liability—From Innocence to Enlightenment, Envtl. Compliance & Litig. Strategy, Apr. 1998, at 7, 7.
covenant not to sue formally acknowledges the conditions of the NFAL in a legal document.\textsuperscript{130} Also included in the covenant is a release for any outside contractors brought to help in remediating the site; this release enables developers to seek professionals who might pass on a project but for such an indemnity.\textsuperscript{131}

Through delegation of federal power to the New Jersey VCP, developers and prospective purchasers are left on surer footing.\textsuperscript{132} The use of MOAs through the VCP clearly outlines all liability, and if the developer follows those outlines while cleaning up the site, he can expect the state to issue a NFAL, as well as a covenant not to sue.\textsuperscript{133} Having those documents to fall back on eliminates much of the apprehension associated with remediation; obviously, the developers will have to remediate the site, yet their possibility of unforeseen lawsuits becomes remote.\textsuperscript{134}

IV. More Ancillary Problems and New Jersey’s Second Remediation Program

The version of the New Jersey VCP promulgated in the 1990s was only the first round of attempts to address brownfield remediation.\textsuperscript{135} It is often referred to as a “first generation” program.\textsuperscript{136} An unintended result of remediation under the first generation program was remediation on a site-by-site basis, where only the most desirable plots were used.\textsuperscript{137} Following logic, the most “commercially viable brownfield properties in New Jersey have been cleaned up [first].”\textsuperscript{138} However, in an urban area with dozens of brownfields, the remediation of one site hardly addresses the core problems of urban blight.\textsuperscript{139} Site-by-site remediation is typically driven by purely financial motives; the best sites are selected, and the project is leveraged for as much money as possible.\textsuperscript{140} Site-by-site remediation did little to alleviate the aesthetic, social, and

\textsuperscript{130} See Singband, supra note 7, 319–20.
\textsuperscript{131} See id. at 320.
\textsuperscript{132} See id.
\textsuperscript{133} See id.
\textsuperscript{134} See id.
\textsuperscript{136} Id.
\textsuperscript{137} See id.
\textsuperscript{138} Id.
\textsuperscript{139} See id.
\textsuperscript{140} See id. at 149 (“The property-by-property approach creates a strong imperative for individual property owners to maximize the commercial value of their individual properties.”).
degenerative problems associated with the concentration of multiple brownfields within a single community.\textsuperscript{141}

\textbf{A. The New Jersey Brownfield Development Area}

Several state legislatures, New Jersey in particular, saw a way of structuring the brownfield program to steer developers away from a site-by-site approach.\textsuperscript{142} It is in this vein that the “second generation” of brownfield remediation came to exist.\textsuperscript{143} The second generation program in New Jersey is marked by the addition of a community steering committee and a desire to bring developers, NJ DEP agency employees, and the citizens of affected communities together.\textsuperscript{144} During the creation of the second generation program, in addition to the New Jersey VCP, the state added a Brownfield Development Area (BDA) program.\textsuperscript{145} The BDA’s goal is to help “communities containing multiple brownfield sites in close proximity to each other to design and implement remediation and reuse plans for each property simultaneously.”\textsuperscript{146} Improvements of community remediation include increased efficiency in investigation and remediation, heightened community participation in planning, and greater coordination between developers and communities.\textsuperscript{147}

The BDA has been referred to as being both “structured and flexible.”\textsuperscript{148} Flexibility is needed when dealing with multiple owners and different site contaminants, while structure is needed to succeed in ensuring compliance and remediation.\textsuperscript{149} New Jersey only considers a handful of BDA projects per year, making the application process quite competitive.\textsuperscript{150} In order to even submit an application, a community “steering committee” needs to be formed.\textsuperscript{151} Once an acceptable steering committee exists, it must produce an application that not only in-

\begin{footnotes}
\item[141] See van Hook et al., \textit{supra} note 135, at 117.
\item[142] See Pippin, \textit{supra} note 68, at 605.
\item[143] See van Hook et al., \textit{supra} note 135.
\item[144] See Pippin, \textit{supra} note 68, at 606.
\item[145] See \textit{id.} at 605.
\item[146] \textit{Id.}
\item[147] van Hook et al., \textit{supra} note 135, at 114.
\item[148] \textit{Id.} at 118.
\item[149] See \textit{id.} at 118–19.
\item[150] Brief Synopsis of NJDEP’s Brownfield Development Area Initiative, N.J. Dep’t of Env'tl. Prot., \textit{supra} note 8.
\item[151] See van Hook et al., \textit{supra} note 135, at 119 (indicating that steering committees are examined during the application process, and that typical members of the committee are “neighborhood residents, property owners, potential developers, community organizations, environmental groups, and others”).
\end{footnotes}
cludes the names and locations of the brownfields potentially being addressed, but why these sites should be remitted, and what the committee wants them turned into. Finally, the application must take into consideration the uses and effects of non-brownfield sites, as well as existing public transportation and other infrastructure.

A determination as to which communities will be granted a BDA program is made through a review of both the applications and the steering boards by NJ DEP in conjunction with other state agencies, including the New Jersey Economic Development Authority (NJ EDA) and the New Jersey Department of Community Affairs (NJ DCA). The selection process is quite careful due to the limited number of projects available per year. Upon the selection of a community for a BDA initiative, the community will receive special government assistance. The government will lend financial assistance to the community as well as hire additional personnel to facilitate the BDA. Most notably, each project is assigned a case manager who will streamline the process of remediation planning, a significant advance from first generation programs. Not only does assigning a single case manager streamline the process, it allows for consistency in all phases of the remediation effort. In addition to the case manager, NJ DCA and NJ EDA employees are brought in, and they form what is known as the “BDA team.”

After the BDA team is in place, it, along with the steering committee and the affected municipal government, will begin discussing the

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152 See id.

153 See id. at 120 (“The application need not include detailed plans for the brownfield properties, but it must articulate a meaningful and realistic vision for where the community, as represented by the steering committee, would like to be at the end of the process.”).

154 See Pippin, supra note 68, at 605–06.

155 See van Hook et al., supra note 135, at 120 (noting that the interagency determination helps balance financial, environmental, and social implications that must be addressed to further smart growth).

156 See Pippin, supra note 68, at 606.

157 See van Hook et al., supra note 135, at 120–21 (explaining that the selected communities receive a case manager and geologist to “oversee remediation necessary within the BDA”).

158 See id. at 121 (BDA consolidates “multiple case teams” to a single manager who is able to work through problems encountered when dealing with “different categories of contaminated sites . . . subject to different statutory and regulatory structures, which are often administered by correspondingly separate administrative units”).

159 See id.

160 Id.
actual process of remediation.\textsuperscript{161} There are four planning steps required before actually engaging in remediation.\textsuperscript{162} The first step is an initial meeting and environmental assessment.\textsuperscript{163} The most important function of the first planning step is the NJ DEP’s guarantee that each brownfield within the BDA will receive a preliminary environmental assessment.\textsuperscript{164} Until the implementation of the BDA, the state had not taken responsibility for environmental assessments, deferring the assessments to developers.\textsuperscript{165} Under the BDA, the state has several ways to allocate funds for the preliminary environmental assessment.\textsuperscript{166} Having diversified funding sources greatly alleviates the responsibility of the developer, increasing the likelihood that the developer will engage in such projects to begin with.\textsuperscript{167} Even in the absence of outside funding, the state commits itself to making sure assessments are completed.\textsuperscript{168}

After the initial meeting and environmental assessments are completed, the second step, a preliminary planning meeting, can begin.\textsuperscript{169} During the preliminary planning meeting, a feasibility study is completed for the steering committee’s informal plan.\textsuperscript{170} The study analyzes the goals of the informal plan while considering information gathered about “traffic patterns, location of park lands or other open space, [and] the use of marketing studies.” This study is in addition to the environmental assessment.\textsuperscript{171}

Third, a resource evaluation must be completed.\textsuperscript{172} Again, during the resource meeting, the benefits of coordinating different state agencies become apparent; resources such as grants, loans, and tax credits are administrated differently and by different agencies. Bringing resources together in one meeting helps identify those resources that exist and where they should be allocated based on the needs of different

\textsuperscript{161} \textit{Id.}
\textsuperscript{162} \textit{See id.} at 121–27.
\textsuperscript{163} \textit{See} van Hook et al., \textit{supra} note 135, at 121.
\textsuperscript{164} \textit{See id.} at 123.
\textsuperscript{165} \textit{See id.}
\textsuperscript{166} \textit{See id.} (funding options include payment by previously liable owners, state assessment grants, uncharged assessment by state employees, and finally, a burden-sharing payment resulting from developers compromising with the state).
\textsuperscript{167} \textit{See id.}
\textsuperscript{168} \textit{Id.} (“Irrespective of which combination of strategies is selected, the state’s commitment is that the assessments will be completed. This ensures that the baseline information for all future planning will be available.”).
\textsuperscript{169} \textit{van Hook et al., supra} note 135, at 124.
\textsuperscript{170} \textit{See id.} at 124.
\textsuperscript{171} \textit{Id.}
\textsuperscript{172} \textit{See id.}
sites. The process of separate agencies allocating their own resources, as well as securing participation from previously liable parties, has increased developer interest in remediation programs.

With interest from the affected communities, state agencies, and private developers, the final planning step—the creation of an executable remediation and reuse plan—begins. This is the step where all raw data and different plans of remediation are examined by the BDA case manager, and where the manager “provides guidance on the environmental aspects of the remediation and whether the plans are realistic.” The site uses are selected and a remediation schedule is constructed. This remediation schedule is used by developers, contractors, and environmental engineers while they complete each project. Throughout the course of remediation, the steering committee will meet with the case manager to ensure that all efforts are on schedule. Beyond these meetings, little more is necessary to effectuate the remediation. Annual reviews monitor progress, as well as the overall timetable for remediation.

B. Results of the BDA Initiative

One assessment of New Jersey’s BDA program indicates that the program “results in a multi-site remediation and reuse plan that incorporates environmental and marketing data, planning considerations, and community preferences, including the preferences of both local residents and local elected officials.” This analysis is trifurcated into separate analyses of “technical responses,” “stakeholder involvement,” and “reuse benefits.” Each of these analyses demonstrates the ways in which New Jersey’s BDA program is superior to first generation programs.

173 See id. at 124–25.
174 Id. at 124 (“Experience to date shows that, while the developer interest in redeveloping isolated brownfields may be low, this interest increases when the state collectively commit resources to ensuring comprehensive remediation and reuse of a BDA.”).
175 See van Hook et al., supra note 135, at 124.
176 Id. at 125–26.
177 See id. (stating that the benefits of a remediation schedule are the maximization of both efficiency and resource allocation).
178 See id.
179 Id. at 127.
180 Id. (demonstrating that annual reviews “encourage[] all parties to pay close attention to the process and the timetables”).
181 van Hook et al., supra note 135, at 140.
182 Id. at 128, 138, 142.
183 See id. at 128–52.
While the BDA program’s changes were primarily driven by the first generation’s failure to improve communities during remediation, the changes to the second generation program have been able to remedy additional sites, helping the entire community.\textsuperscript{184} By assigning each BDA initiative a case manager who participates in the entire planning process, the BDA program eliminates duplicative work, maximizes financial efficiency, and ensures all regulations are followed.\textsuperscript{185} Essentially, each important step is streamlined and made more consistent by the presence of the case manager.\textsuperscript{186} In addition to a streamlined process, the BDA program’s structure enables the remediation of more sites.\textsuperscript{187} Because all the potential brownfields in a community are cleaned during the BDA, some sites that otherwise would have fallen below the state’s radar are caught in the BDA’s net.\textsuperscript{188} The second generation therefore remediates more sites, and it does so in a more efficient manner.

The second analysis, “stakeholder involvement,” emphasizes the goals of community involvement that the BDA directly sought to implement.\textsuperscript{189} The BDA program provides a careful balance that increases the power of communities and local government, yet vests traditional decision-making powers with the developers controlling each site.\textsuperscript{190} This is important because it allows developers to find out which types of development local citizens appreciate.\textsuperscript{191} Compromises can be struck between developers and community leaders, where a for-profit site

\textsuperscript{184} See id. at 129.
\textsuperscript{185} Id. at 132–33 ("A single BDA case manager ensures . . . the consistent interpretation and application of regulatory requirements and remediation standards throughout the BDA. A single case manager can also coordinate the timing of specific steps of the individual remediation projects to maximize the benefit of the economies of scale . . . .").
\textsuperscript{186} See id. at 126.
\textsuperscript{187} See Pippin, supra note 68, at 605.
\textsuperscript{188} See van Hook et al., supra note 135, at 129–30 (citing the fact that only four of twenty-eight properties under a BDA project had previously been identified as environmental risks, as support for the proposition that without the BDA, many sites would continue to be unnoticed).
\textsuperscript{189} See id. at 139.
\textsuperscript{190} See id. at 140 (explaining that “the BDA Initiative does give the reuse preferences of the steering committee substantial persuasive force,” even though community stakeholders “generally will not have the ability to dictate specific uses on properties they do not control”).
\textsuperscript{191} See id. at 141 (“The support of the steering committee for the uses proposed in the remediation and reuse plan is also an indication that reuse in accordance with the plan would benefit from public support and would not face costly and time consuming public opposition.”).
proposal would coincide with the addition of a green space or community-desired site.¹⁹²

Reuse benefits, the third and final point of analysis, represent the most basic elements of remediation. An examination of reuse benefits essentially encapsulates the success of a brownfield remediation.¹⁹³ The more sites that are cleaned the less brownfields exist, which in turn leads to more functioning developments, more jobs, greater residential housing, less urban sprawl, and more greenfields.¹⁹⁴ Positive reuse is the ultimate goal because it brings more benefits with each site that is completed.¹⁹⁵

The BDA initiative improves the likelihood of positive reuse in many ways.¹⁹⁶ Many of the benefits occur as a result of the certainty associated with the BDA process.¹⁹⁷ This certainty not only leads to effective remediation of already designated sites, but often coaxes developers to include additional properties to their plans.¹⁹⁸ Finally, the BDA provides a venue for multiple affected property owners to come together to create a remediation plan that will maximize potential that was unavailable under site-by-site remediation.¹⁹⁹ A site that was considered useless under the site-by-site approach can be given new life, as the BDA provides examples of “[s]mall properties within one BDA [being] combined to create a commercially viable parcel.”²⁰⁰ Combining properties not only creates one “viable” property, but also serves to limit exposure and limit costs associated with large scale remediation.²⁰¹

¹⁹²  See id.
¹⁹³  See id. (explaining that remediation is primarily concerned with reusing land, and the more reuse benefits conferred upon contaminated sites, the better the BDA works).
¹⁹⁴  See Pippin, supra note 68, at 601–03 (highlighting the problems of loss of jobs, lack of affordable housing, problems of urban sprawl, and describing how the New Jersey BDA addresses those problems).
¹⁹⁵  See van Hook et al., supra note 135, at 142.
¹⁹⁶  See id. at 143–52 (improving reuse through coordinated timing, reduction of developer uncertainty, and improving ownership coordination).
¹⁹⁷  See id. at 145–46.
¹⁹⁸  See id. at 143 (“Once a comprehensive reuse plan begins to take shape, [developers] have, on more than one instance, identified how additional BDA properties can augment their original development plans and have taken responsibility for those properties as well.”).
¹⁹⁹  See id. at 148.
²⁰⁰  Id.
²⁰¹  See van Hook et al., supra note 135, at 148–49.
V. Cancellation of the New Jersey VCP

A. Actual Cancellation

The BDA is admittedly a narrower program than the VCP. Since 2002, sites not selected for the BDA initiative have been remediated in accordance with the New Jersey VCP, New Jersey’s first generation program. Recently, however, New Jersey abandoned its VCP. On May 7, 2009 the New Jersey DEP enacted the Site Remediation Reform Act (SRRA), a major element of which is the elimination of the New Jersey VCP. Developers conducting remediation are not to wait for a MOA; rather, they are to “proceed through the [remediation] process without waiting for Department approvals.” The VCP is a first generation remediation program, and the NJ DEP is only able to eliminate it by reverting back to the liabilities associated with the Spill Act. Indeed, the SRRA “contains a provision . . . which establishes an affirmative obligation on persons to remediate any discharge for which they would be liable pursuant to the Spill Compensation and Control Act.” With this legislation, New Jersey moved from a state with a progressive second generation remediation program and an established safety-net first generation program, to a state with a second generation program whose unselected sites are subjected to the general liability New Jersey abandoned over twenty-five years ago.

The return to the Spill Act, however, is just one of two major changes associated with the SRRA. The SRRA also established a scheme where Licensed Site Remediation Professionals (LSRPs) are licensed by the state and conduct virtually all remediation in New Jersey. This licensing scheme requires that all parties who commence remediation after November 3, 2009 hire LSRPs to conduct site reme-

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202 See Pippin, supra note 68, at 606 (BDA only designates several projects each year).
203 See id. at 605 (BDA established in 2002); Voluntary Cleanup Program, N.J. Dep’t of Env’tl. Prot., supra note 99 (VCP not discontinued until May 7, 2009).
204 Voluntary Cleanup Program, N.J. Dep’t of Env’tl. Prot., supra note 99.
205 Id. (claiming that new implementations eliminate the need for a VCP).
206 Id. (“The Department has discontinued the Memorandum of Agreement (MOA) process.”).
207 See id.
208 Id.
209 See id.
211 Id. § 58:10B-1.3.b.(1) (“A person who initiates a remediation of a contaminated site . . . shall . . . hire a licensed site remediation professional to perform the remediation.”).
The LSRP program effectively removes the NJ DEP from any involvement in site cleanup beyond the initial licensing of LSRPs. The move towards outsourcing remediation efforts to private professionals was mainly a result of insufficient funding and an inability of the NJ DEP to continue administering the VCP. After the permitting process is complete, the remediation process, which was once very government intensive, is almost completely privatized. Once an LSRP is hired by a developer, the LSRP will not only oversee the remediation, it will proffer to the NJ DEP that all work has been done and all aspects of the remediation are consistent with state statutory requirements.

Although the implementation of the LSRP program through the SRRA virtually eliminates the NJ DEP from the remediation process, they do retain some semblance of oversight. The NJ DEP will review all documents submitted by LSRPs for each site. However, for many sites, this is where oversight will cease. Only when special factors are present will the NJ DEP be forced to complete additional review of submitted documents, and even then there is nothing that mandates that the NJ DEP “review the performance of a remediation.” Some of the main factors include: (1) if “the contamination at the site poses a significant detrimental impact on the public health, safety, or the environment as determined by a[n] . . . evaluation”; (2) if “the contamina-

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212 Id.; see Voluntary Cleanup Program, N.J. DEP’t Of Envtl. Prot., supra note 99.
213 See SRRA § 58:10B-1.3.b.(3) (“A person who initiates a remediation of a contaminated site . . . shall . . . conduct the remediation without the prior approval of the department.”).
214 Interview with Kenneth Clue, supra note 3 (making clear that the cancellation of the NJ VCP was propelled by budget constraints).
215 See SRRA § 58:10C-7, -14. The permitting process is not done by the NJ DEP. Id. § 58:10C-7. A separate buffer entity, the LSRP board, does all the permitting. See id. During the screening process, “[t]he board shall conduct examinations to certify that an applicant possesses sufficient knowledge of the State laws, rules and regulations, standards and requirements applicable to site remediation and that the applicant is qualified to obtain a license or a license renewal.” Id.
216 See id. § 58:10C-14 (“The licensed site remediation professional shall certify that the work was performed, the licensed site remediation professional managed, supervised, or performed the work that is the basis of the submission, and that the work and the submitted documents are consistent with all applicable remediation requirements adopted by the department.”).
217 See id. § 58:10C-21 to -26.
218 Id. § 58:10C-21.
219 See id.
220 Id. (showing that depending on the type of the trigger, the department “shall perform additional review of any document, or shall review the performance of a remediation” or “may perform additional review of any document, or may review the performance of remediation”) (emphasis added).
tion at the site may affect a licensed child care center, school or other sensitive population”; or (3) if “State grants or loans are being used to remediate the site.” If the submitted documents do not raise one of these issues, it is unlikely that the NJ DEP will pursue a remediated site any further.

To keep LSRP documentation honest, the NJ DEP has set up an auditing process where the board in charge of issuing permits will annually audit at least ten percent of LSRPs. Depending on the outcome of a LSRP’s audit, the NJ DEP may recommend an investigation of an LSRP. The investigation is a safeguard that allows the board to “consider the suspension or revocation” of an LSRP’s license. Finally, the SRRA lays out protective guidelines for LSRPs who report damaging information about a site. Realizing that LSRPs are both employed by developers and owe fiduciary duties to properly remediate according to state regulations, the SRRA prevents “retaliatory action against licensed remediation professional[s].”

B. Another Example of Cleanup Privatization: The Massachusetts Model

Massachusetts was the first state to create a scheme where the state environmental agency essentially privatized cleanup by outsourcing to licensed consultants. In fact, the Massachusetts model is one of the main examples that New Jersey relied upon when designing its own program. The Massachusetts model shares many similarities with the New Jersey LSRP program. At the most basic level, both programs outsource their brownfield remediation to private parties, with Massachusetts law “requir[ing] regulated entities to hire private consultants—licensed site professionals (LSPs)—and [to] receive their approval before mandatory remediation can be considered complete.”

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221 Id.
222 See id.
223 Id. § 58:10C-24.
224 Id. § 58:10C-23.
225 Id.
226 Id. § 58:10C-26.
227 Id.
228 See Miriam Seifter, Rent-a-Regulator: Design and Innovation in Environmental Decision Making, in Government by Contract: Outsourcing and American Democracy 93, 94 (Jody Freeman & Martha Minow eds., 2009).
229 Interview with Kenneth Clue, supra note 3.
230 Seifter, supra note 228, at 94.
Jersey, the Massachusetts LSP program oversees the entire hazardous waste cleanup with virtually no DEP oversight.231

The LSP program also has an auditing feature that is actually broader than the New Jersey LSRP.232 As in New Jersey, the Massachusetts board has the ability to discipline any LSPs following a negative audit.233 However, it is difficult for an LSP to receive a negative audit, because the “approval process allows LSPs substantial discretion” as to the level at which remediation should occur.234 This is a result of the LSP board’s focus on procedure over outcome.235 The Massachusetts LSP program lists all of the different services an LSP can potentially provide to a client.236 With many ways to participate in the remediation process and significant discretion to choose a method, it is not uncommon for a private LSP’s remediation effort to fail to comply with existing regulations, let alone meet agency expectations.237

Failure to comply with regulations is typically documented by the audits conducted by the Massachusetts DEP.238 These audits show that “LSPs routinely fail to comply with the regulations governing hazardous waste site cleanups, sometimes creating serious risks to human health and the environment.”239 In fact, a study of the program from its implementation in 1994 through 2005, shows that every year no more than twenty-nine percent of “completed sites” are given passing evaluations.240 A possible reason for the low pass rate is that by privatizing remediation, Massachusetts—and anyone following this model—has cre-

231 See id. at 97.
232 See id. (explaining that Massachusetts statute requires audits for twenty percent of completed cleanups).
233 Id. (“The state licensing board possesses the authority to discipline LSPs for unprofessional conduct.”).
234 Id.
235 See id. at 97–98.
236 Seifter, supra note 228, at 98–99.

Although LSPs only act in their official capacity when they approve and seal a document, their range of services may be far broader; LSPs often perform the very work they are approving. They frequently design site investigations, crunch the numbers of a risk assessment, and draft work plans. They or their firms may also carry out the physical remediation, and some LSPs also provide legal or regulatory advice, acting as a point person for the entire project.

Id.
237 See id. at 99.
238 See id.
239 Id.
240 Id. tbl.4.1 (showing the number of passing evaluations hit an all time low of thirteen percent in 2003).
ated inherent conflicts of interest. This happens in two ways: (1) since the LSP responsible for cleanup is often the LSP tasked with approving site completion, it behooves the LSP to expend minimal effort before approving completion; and (2) the LSP is a private entity hired by a developer to remediate a property, yet the LSP simultaneously is charged with complying with state regulations. The more an LSP complies with state regulations, the more costly it is for a developer to retain the LSP, thereby diminishing the incentive to hire a good LSP.

In addition to issues involving conflicts of interest, the Massachusetts LSP program has also been cited for management and discipline problems. Some of the management pitfalls are related to its failure to provide ongoing monitoring. This problem stems from the fact that only twenty percent of sites are required to be audited. And of the twenty percent, most of the audits are only a review of paperwork submitted by the LSP. In reality, slightly less than two percent of all sites actually get a “full fledged ‘comprehensive evaluation’ involving actions like sample collection and site visits to ensure compliance.”

Because the Massachusetts DEP and the LSP board are separate entities, each holding limited power, even when failure is detected, “the disciplinary architecture fails to deter regulatory [problems].” Despite its problems, there are many benefits claimed to be associated with the Massachusetts LSP program. The program is “widely praised for enabling the cleanup of thousands more sites per year” than the previous government-administered program.

VI. Is New Jersey Moving Forward by Moving Backwards?

New Jersey is often cited as one of the most progressive states for environment and brownfield cleanup policy. However, its decision to eliminate its VCP and to privatize remediation is a curious change. The state’s reversion to the Spill Act necessitates an analysis about what this

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241 See id. at 103.
242 See Seifter, supra note 228, at 103.
243 See id. at 104–07.
244 Id. at 105.
245 Id.
246 See id.
247 Id.
248 Seifter, supra note 228, at 106.
249 See id. at 95 (claiming the program is more expedient, flexible, and productive than traditional government regulation).
250 Id.
251 See Revesz, supra note 6, at 605.
means for New Jersey’s interaction with the federal government under the Brownfields Act, as well as what the LSRP program means for those remediating in New Jersey.

A. Federal-State Interplay

Until the passage of the federal Brownfields Act, anyone remediating a site was potentially liable on both the state and federal levels.\(^{252}\) With the passage of the Brownfields Act, the federal government declared that it would not interfere with an eligible site if remediating through a state plan.\(^{253}\) In virtually all states, remediation is under the state VCP.\(^{254}\) However, since the passage of the SRRA, New Jersey no longer has a VCP.\(^{255}\) The New Jersey VCP has been replaced by the sweeping liability of the Spill Act.\(^{256}\)

The federal government’s promises not to begin administrative or cost recovery actions against sites being remediating under a state plan, and New Jersey’s loss of a central plan, is a precarious combination. However, New Jersey can still obtain a bar against federal action because the SRRA makes parties comply with the requirements of the Spill Act.\(^{257}\) In reality, the Brownfields Act merely requires that a state have a plan, and that the plan is not limited to VCPs:

Section 128 bars federal enforcement under CERCLA against any person who has complied with a VCP that qualifies under the 2002 Amendments. The Environmental Protection Agency (EPA) has entered into memoranda of agreement (MOA) with most states confirming the circumstances under which compliance with the state program constitutes compliance with a VCP for purposes of the enforcement bar of section 128. . . . However, nothing in CERCLA requires a memorandum of agreement in order to invoke the enforcement bar of section 128.\(^{258}\)

\(^{252}\) See McMorrow, supra note 4, at 1087.


\(^{254}\) See Fox & McIntyre, supra note 106, at 19–20.


\(^{256}\) See id.

\(^{257}\) See id.

This is important because the Spill Act is a state program, and the Brownfields Act will apply in the same way it would to a VCP. 259 As long as one of the limited federal reopeners is not triggered, the federal government is unlikely to become involved. 260 In fact, the Spill Act has stricter liability and standards than the VCP program, making it less likely to produce a reopener and trigger federal action. 261

B. The SRRA’s State Implications

As federal liability is even less likely to occur despite the changes the SRRA has made, the new Act’s most important impact will be at the state level. The effect occurs in two areas: the substance of the Act, and its procedure.

1. Moving Backwards: The Substance of SRRA

Under the SRRA, parties have “an affirmative obligation . . . to remediate any discharge for which they would be liable pursuant to the Spill Act.” 262 This one change annihilated most of the development that had occurred over the last thirty years. From 1976, when the Spill Act was enacted, until May 2009, when the SRRA repealed the state’s VCP, the progression of New Jersey’s remediation programs was linear, progressive, and logical. 263 While no environmental liability plan was perfect, each used the lessons learned from previous models to positively increase the efficiency, desirability, and end result of brownfield remediation. 264 Each generation of programs was able to plug holes left by its predecessor. 265 The changes made by the New Jersey Legislature have effectively reversed those advancements. 266 While the

259 See id.
260 See Fox & McIntyre, supra note 106, at 27.
261 See Eisen, supra note 115, at 737. The VCP clarified remediation standards in an effort to lower developer anxiety about costs and liability. Id. (describing the NJ VCP as being flexible in order to induce developers to remediate under the program).
262 See Voluntary Cleanup Program, N.J. Dep’t of Envtl. Prot., supra note 99.
265 See supra Parts III.A–B, IV.B. (explaining federal and state responses to broad liability schemes, and New Jersey’s attempt to implement a second generation program to make up for some aspects overlooked by its predecessors).
266 See id.
Spill Act was an important step when it was enacted,267 future legislation was a response to its shortcomings.268

The removal of the VCP would not be as harsh if the SRRA enacted legislation that prevented the freefall from the VCP all the way back to the Spill Act. With no intermediate plan, all the problems associated with the Spill Act resurface. Again, individuals will be held responsible for remediation costs no matter what their actual involvement with the property has been.269 The same fears of liability would exist for developers, returning to the concern that they would be caught in the wide net of liability, and subject to a high-cost removal.270 The social and financial costs associated with broad liability schemes are documented and well known.271 If financers and developers are deterred, brownfields will continue to languish, leaving eyesores that place communities of innocent individuals at risk, depress job markets and tax bases, and cause the acceleration of urban sprawl.272

Developers were known to let contaminated sites languish, rather than put them into use because they were afraid to be held jointly and severally liable for site remediation—joint and several liability being the main feature of the Spill Act.273 A reversion to this method is of questionable value, considering the changes made to move away from it. It may not matter if the new program is capable of enabling the cleanup of many more sites, if developers are too afraid to actually come forward about owning contaminated sites.274 The New Jersey VCP may have been slower and more cumbersome, but this is a natural byproduct for a program that nurtured the flexibility needed to attract contaminated site owners to remediate sites.275

The broad liability of the Spill Act will continue to exist under the SRRA, yet the LSRP program has the potential to control how sites are remediated once a site comes forward.276 With this power, the LSRP can mitigate many of the distressing factors outlined in this Note by

267 See McGahren & LeJava, supra note 35, at 225; Schmid, supra note 34, at 526.
268 See supra Part II (identifying problems with Spill Act broad liability); Part III.B. (changes implemented under VCP to deal with some of these issues).
269 See Shapiro, supra note 22, at 445; Higgins, supra note 27, at 243.
270 See Higgins, supra note 27, at 243.
271 Supra Part II.A–B.
272 See McMorrow, supra note 4, at 1088; Rubenstein, supra note 70, at 150.
273 See Shapiro, supra note 22, at 445.
274 See Seifter, supra note 228, at 97.
275 See Eisen, supra note 115, at 737 (describing flexibility as “a critical element” of the NJ VCP).
276 See van Hook et al., supra note 135, at 120–21.
having the licensed professionals administer remediation with flexibility akin to the New Jersey VCP.\textsuperscript{277} The problems with broad liability can be offset if LSRPs take steps to retain the flexibility of the old VCP.\textsuperscript{278}

2. Implementation: Structuring the LSRP Program to Maximize Cleanup Potential

The changes enacted by the SRRA were designed to be permanent. New Jersey is in severe financial trouble, and by outsourcing site remediation to private companies, the state is saving a tremendous amount of money.\textsuperscript{279} The fact that New Jersey lacks the resources to administer a full-time VCP does not mean that it cannot remain involved in the remediation of its own brownfields. Remediation does not need to be an all or nothing, public versus private affair; if the state intends on keeping the privatized structure of LSRP, then it should structure the program to meet as many of the fundamental goals of brownfield remediation as it can.

As it is currently situated, the New Jersey LSRP program is destined to encounter many of the same pitfalls as the Massachusetts model on which it is based.\textsuperscript{280} Because the programs are structured almost identically, it is a logical conclusion that New Jersey will suffer from many of the same problems that the Massachusetts program has.\textsuperscript{281} Observers have already identified problems with conflicts of interest for the licensed professionals, as well as issues dealing with the state DEP control over management and discipline.\textsuperscript{282} By correcting these problems, New Jersey could turn the SRRA, an Act that initially appeared to be a step backwards, into a program that provides standards as high as any past program, while doing so more efficiently.\textsuperscript{283} The positive aspects of outsourced remediation, “namely volume and speed of cleanups completed,” will be better utilized in a system where the remediation taking place is actually meeting its stated goals.\textsuperscript{284}

The major problems with an outsourced remediation program can be broken down into two areas: conflicts of interest and manage-

\begin{itemize}
\item \textsuperscript{277} See id.
\item \textsuperscript{278} See Seifter, supra note 228, at 107.
\item \textsuperscript{279} Interview with Kenneth Clue, supra note 3.
\item \textsuperscript{280} Seifter, supra note 228, at 107 (“Despite its success in other areas . . . the LSP program exhibits several structural flaws . . . ”).
\item \textsuperscript{281} See supra Part V.B.
\item \textsuperscript{282} See Seifter, supra note 228, at 103–04.
\item \textsuperscript{283} See id. at 107.
\item \textsuperscript{284} Id.
\end{itemize}
Conflicts of interest can occur internally and externally for LSRPs. Internal conflicts of interest occur when an LSRP is both responsible for remediating the site in question and for approving the site. Academics have already identified this problem in Massachusetts and have come up with easily implemented, cost-effective solutions to deal with this problem. Simply put, New Jersey should promulgate a regulation saying “that an LS[R]P cannot render a professional opinion on a site for which she herself drafted the plans.” This way, LSRPs are double-checking the work of their peers; no one would be able to cut corners and get away with it simply by approving his or her own misdeed.

As to external conflicts of interest, the state could act as a middle man between the LSRP and the site owners. This would remove the double-edged sword of both being employed by a site owner and needing to report on infractions which could be quite costly to the same owner. Having the state hire the LSRP, then charging site clients itself would create a needed buffer. New Jersey’s anti-retaliation regulation partially addresses this issue, but not to the extent needed to ensure proper reporting.

The management problems will require more substantive changes to correct. A more extensive audit process would disabuse LSRPs of the notion that shoddy remediation will go overlooked; it will show them that such work will be identified and punished. Massachusetts has problems with the breadth of its audit process despite having a system with twice as many mandatory audits. Obviously this suggestion would require the NJ DEP to reinvest some of the money it saved by outsourcing remediation in the first place, but it would go a long way towards providing better results. To buttress their audits, it would also behoove the NJ DEP to unify the disciplinary scheme.

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285 See id. at 103–07.
286 See id. at 103–04.
287 See id. at 103.
288 See Seifter, supra note 228, at 107–08.
289 See id. at 107.
290 See id. at 95 (explaining that violations are so common because there is “little fear of getting caught”).
291 See id. at 107–08.
292 See id.
293 See id.
295 See Seifter, supra note 228, at 108.
296 See SRRA § 58:10C-24; Seifter, supra note 228, at 97.
297 See Seifter, supra note 228, at 108.
298 See id.
the power between the board and the NJ DEP limits its effectiveness.\textsuperscript{299} Implementing these changes is the most effective route towards providing quality remediation under the SRRA. Although the New Jersey VCP was effective in its time, and the logical progression for site remediation would appear to be BDA initiatives, the reality is that in difficult economic times, there is little chance of their broad implementation.\textsuperscript{300}

**Conclusion**

The New Jersey BDA initiative is the ideal remediation program for every state. Since the implementation of broad liability legislation, site remediation programs have been on a slow track towards the BDA and its complete vision of site remediation.\textsuperscript{301} The problems associated with broad liability were identified and many of those problems were addressed with the NJ VCP.\textsuperscript{302} That program was refined even more thoroughly with the creation of the BDA, which finally achieve total community remediation.\textsuperscript{303} In the linear progression of environmental regulations, the BDA is the farthest that New Jersey has come. Therefore, it makes little sense that New Jersey has moved backwards toward the Spill Act, the BDA’s archaic counterpart. However, environmental cleanup does not take place in a vacuum. State budgets are limited, and not every brownfield remediation can be performed with the level of care exemplified by the BDA.\textsuperscript{304} New Jersey in particular has seen massive budget cuts and faced the difficult decision to abandon most of its control over the remediation process by privatizing it.\textsuperscript{305}

These changes have not been ideal. The sweeping liability reenacted by SRRA is cause for some unease.\textsuperscript{306} However, the LSRP program implemented by SRRA has the potential to make several changes that will maximize its effectiveness as a remediation program.\textsuperscript{307} Ultimately, environmental cleanup is not about public versus private remediation. It is concerned with addressing the host of problems outlined in Part III, and encouraging developers to remediate their brownfield

\textsuperscript{299} See id. at 106.
\textsuperscript{300} See Interview with Kennith Clue, supra note 3.
\textsuperscript{301} Supra Parts I.B, IV.
\textsuperscript{302} Supra Part III.B.
\textsuperscript{303} See supra Part IV.A.
\textsuperscript{304} See van Hook et al., supra note 135, at 118–19; Interview with Kennith Clue, supra note 3.
\textsuperscript{305} See Interview with Kennith Clue, supra note 3.
\textsuperscript{306} See Higgins, supra note 27, at 243.
\textsuperscript{307} See Seifter, supra note 228, at 103–08.
sites.\textsuperscript{308} As a fiscally constrained state, New Jersey is unlikely to move away from the privatized scheme of SRRA,\textsuperscript{309} but by implementing regulations that limit conflicts of interests, for virtually no cost, the program can become more effective.\textsuperscript{310} With an understanding of the brownfield problem, and a similar understanding of the effectiveness of programs used to remediate them, the NJ DEP can implement regulations to maximize review and avoid conflicts of interest.\textsuperscript{311} Privatized cleanups have already been touted as being able to remediate a large number of sites in a more rapid manner than traditional state programs.\textsuperscript{312} By coupling these benefits with greater LSRP accountability, New Jersey will have effectively taken its lessons learned and made the SRRA the best it can possibly be.\textsuperscript{313}

\begin{itemize}
\item \textsuperscript{308} See supra Part III.B.
\item \textsuperscript{309} See Interview with Kennith Clue, supra note 3.
\item \textsuperscript{310} Supra Part VI.B.2.
\item \textsuperscript{311} Supra Part VI.B.2.
\item \textsuperscript{312} See Seifter, supra note 228, at 106.
\item \textsuperscript{313} See supra Part VI.B.2
\end{itemize}
RCRA’S NEW CAUSATION QUESTION:
LINKING UBIQUITOUS WASTES TO
SPECIFIC DEFENDANTS

MICHAEL SOMERS*

Abstract: The Resource Conservation and Recovery Act (RCRA) imposes liability on defendants whose handling of solid waste may present an imminent and substantial danger to the environment. For most of RCRA’s history, there was no need to prove a link between waste that was harming the environment and the waste handled by the defendant, because the highly specific materials litigated under RCRA only could have come from the defendant. However, now that plaintiffs have sued defendants over the handling of naturally occurring wastes, courts must decide what level of proof is required to demonstrate the link between the defendant’s waste and the waste causing the harm. This Note argues that courts should use the same low standard of proof of causation that applies throughout the rest of the statute.

INTRODUCTION

When Americans think about the problem of waste disposal, their heads immediately fill with images of nuclear waste, overflowing landfills, and the sights and smells that accompany traditional forms of “waste.” However, while waste indeed includes such traditional notions of hazardous waste or garbage, it can refer to any material discarded by humans and put back into the environment. When waste is considered in such terms, even naturally occurring bacteria or minerals, such as ammonia and nitrate, can be considered waste if discarded by humans back into the environment.

Naturally occurring and common wastes, in addition to more dangerous types of waste, are regulated by the United States’ federally run, and extremely comprehensive, waste management programs. While

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natural wastes receive relatively little attention due to the comparatively high-profile nature of hazardous waste, their regulation is an important part of proper waste management. The Resource Conservation and Recovery Act (RCRA) plays a large role in the regulation of non-hazardous solid wastes, and is one of the few federal statutes that regulates naturally occurring wastes. This regulation is done in part through one of RCRA’s citizen suit provisions, which allows citizens to sue a party whose waste management practices may pose an imminent and substantial endangerment to the environment or human health.

Citizen suits under RCRA often boil down to questions of causation, and problems of proof. Did the defendant contribute to the waste in question? Can the waste in question pose a threat to the environment? Is the waste posing a threat in this case? How dangerous must the threat be? How imminent must the danger be? What kinds of proof may be introduced to prove these factors? While decades of case law have somewhat settled these issues, a new question is starting to emerge in the context of naturally occurring wastes. Is the harmful waste actually the same waste produced by the defendant, or has this naturally occurring waste come from a different man-made source, or even from the environment itself? Plaintiffs litigating these cases often do not have the scientific proof necessary to answer this question with certainty. Thus, courts that have heard the issue seem to reject these RCRA claims due to a lack of causation, and specifically a lack of scientific evidence to prove this causation question.

This Note will examine the level of causation that RCRA requires plaintiffs to demonstrate when linking a common and ubiquitous waste to a specific defendant, and specifically what types of scientific proof are permissible to establish this evidence. Part I will introduce the reader to the topic of solid waste regulation by offering a brief history.

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7 See, e.g., Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769, 777 (10th Cir. 2009); Interfaith Cmty. Org. v. Honeywell Int’l, 399 F.3d 248, 261 (3d Cir. 2005); Cox v. City of Dallas, 256 F.3d 281, 297 (5th Cir. 2001).
8 See Interfaith, 399 F.3d at 259–60; Cox, 256 F.3d at 295.
9 See Tyson Foods, 565 F.3d at 777.
10 See id.
11 See id.; Steilacoom Lake Improvement Club Inc. v. Washington, 138 F. App’x 929, 933 (9th Cir. 2005).
of the federal waste management statutes that lead to RCRA’s citizen suit provision.\textsuperscript{12} Part II will demonstrate that Congress intentionally authored this citizen suit provision to lower causation requirements from those of the common law and to ensure greater protection to the environment in the face of scientific uncertainty.\textsuperscript{13} Part III will show that courts have interpreted the language of the citizen suit provision very broadly based on the legislative history, making it easier for plaintiffs to demonstrate causation.\textsuperscript{14} Part IV will introduce the case of Oklahoma v. Tyson Foods, Inc., which provides a helpful illustration of the new causation question, and also demonstrates the incorrect way to address the question.\textsuperscript{15} Finally, Part V will argue that this new causation question should benefit from the same relaxed standard of causation that intentionally appears in the rest of the statute.\textsuperscript{16}

I. A HISTORY OF SOLID WASTE REGULATION IN THE UNITED STATES

A. The Road to RCRA’s Most Important Citizen Suit

For much of the twentieth century, neither the United States government nor the American public was very concerned with the problem of waste disposal, despite the rapid increase in the amount of waste produced in the United States since the Industrial Revolution.\textsuperscript{17} Until 1965, the entire extent of solid waste regulation was under the Public Health Service Act (PHSA), which emphasized research into better ways to dispose of waste.\textsuperscript{18} In the 1960s, however, environmental issues became a larger part of congressional discussion as lawmakers looked for ways to clean up America’s air, water, and land.\textsuperscript{19} This decade marked the first time that the United States began to think seriously about reshaping the way we regulate and dispose of waste.\textsuperscript{20}

\textsuperscript{12} See infra Part I.
\textsuperscript{13} See infra Part II.
\textsuperscript{14} See infra Part III.
\textsuperscript{15} See infra Part IV.
\textsuperscript{16} See infra Part V.
\textsuperscript{17} See Newsday, Rush to Burn: Solving America’s Garbage Crisis? 28–29 (1989); Chambers & McCullough, supra note 4, at 21. In the middle of the twentieth century, waste was generally defined as “a great variety of things that individuals, manufacturers, commercial establishments, and communities discard as no longer usable, such as garbage, rubbish, ashes, street refuse . . . and the wastes from slaughterhouses, canneries, manufacturing plants, and hospitals.” H.R. Rep. No. 89–899, at 7 (1965).
\textsuperscript{18} See Chambers & McCullough, supra note 4, at 21.
\textsuperscript{19} Id.
\textsuperscript{20} See id.
In 1965, President Lyndon Johnson urged Congress to act with respect to solid waste regulation. After Congress investigated the dangers behind improper waste disposal, it did not sugarcoat the situation for the American public. The Committee on Interstate and Foreign Commerce declared: “[W]aste collection and disposal activities create one of the most serious and most neglected aspects of environmental contamination affecting public health. . . . The efforts now being made to deal with this problem are clearly inadequate.” Congress responded to these findings, in part, by passing the Solid Waste Disposal Act (SWDA) of 1965. Like the PHSA, the SWDA focused on research goals and financial assistance to states, without any truly enforceable regulatory mechanism.

During the 1970s, Congress and the American public became increasingly concerned over a specific type of non-residential solid waste, namely hazardous waste. Again, Congress was forthright about the extent of the problem: “[A]pproximately 30–35 million tons of hazardous waste are literally dumped on the ground each year . . . [which] can blind, cripple or kill . . . defoliate the environment, contaminate drinking water supplies and enter the food chain under preset [sic], largely unregulated disposal practices.” With greater public attention in this decade to hazardous waste, Congress responded with the passage of the Resource Conservation and Recovery Act (RCRA), which amended the SWDA.

RCRA was intended to regulate the treatment, storage, and disposal of both solid and hazardous waste. RCRA is often described as regulating waste “from cradle to grave” because it has provisions for the generation of waste through its eventual disposal. Many heralded this statute as closing the last remaining loophole in environmental

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21 Id.
23 Id.
26 See Chambers & McCullough, supra note 4, at 22–23. EPA regulations define hazardous wastes in a complex manner, but generally consider the following four characteristics: ignitability, corrosivity, reactivity, and toxicity. See 40 C.F.R. § 261.20–.24 (2009).
29 RCRA, 42 U.S.C. §§ 6901–6992k; see Gilmore, supra note 4, at 883.
regulation as it applies to many harmful substances not covered by other environmental protection measures.\textsuperscript{31}

Over the next several years, this “last remaining loophole” proved especially difficult to close because the regulation of solid waste, as opposed to hazardous waste, received little attention due to the high fears surrounding hazardous waste.\textsuperscript{32} Two years after the passage of RCRA, EPA had promulgated only a few regulations for the non-hazardous solid waste program.\textsuperscript{33} After several high-profile hazardous waste disasters, the non-hazardous waste program became little more than a background concern.\textsuperscript{34} Abandoned hazardous waste sites, such as Love Canal in Niagara Falls, brought the dangers of hazardous waste to the forefront of public attention and highlighted the need for a statute even stronger than RCRA.\textsuperscript{35}

The congressional response came with the passage of the Solid Waste Disposal Act Amendments of 1980, which focused on minimizing the danger of on-going hazardous waste sites.\textsuperscript{36} However, EPA fell subject to the same problems as in the late 1970s—consistently missing deadlines, and failing to promulgate regulations for the proper disposal of solid waste.\textsuperscript{37} Impatient with EPA’s delays, Congress returned to the waste disposal issue with the Hazardous and Solid Waste Amendments (HSWA) of 1984.\textsuperscript{38} Although Congress and the American Public were still primarily concerned with the regulation of hazardous waste,\textsuperscript{39} the HSWA also included provisions for the regulation of solid waste.\textsuperscript{40} Specifically, the HSWA added a citizen suit provision, which allowed citi-

\textsuperscript{31} United States v. Waste Indus., Inc., 734 F.2d 159, 165 (4th Cir. 1984).
\textsuperscript{32} See Chambers & McCullough, supra note 4, at 22.
\textsuperscript{33} Id.
\textsuperscript{35} See Chambers & McCullough, supra note 4, at 22–23. In the Love Canal neighborhood of Niagara Falls, New York, the local school board purchased a piece of land from a chemical company. In 1978, years after developing a residential neighborhood on the land, known carcinogens were found in the basements and yards of the community. See Pogue, supra note 34, at 466.
\textsuperscript{37} See Chambers & McCullough, supra note 4, at 22–23.
\textsuperscript{39} See Gilmore, supra note 4, at 883.
\textsuperscript{40} See RCRA, 42 U.S.C. § 6972(a)(1)(B) (giving citizens the right to sue when solid waste may be presenting a danger to the environment).
zens to act as the EPA Administrator in enforcing proper solid waste disposal.\(^{41}\)

**B. The Basic Elements of RCRA’s Citizen Suit Provision**

Even though RCRA already specified how, when, and where to dispose of many different wastes, Congress specifically intended to give citizens broad authority to avoid future disasters not contemplated\(^{42}\) in other parts of the statute.\(^{43}\) The most important citizen suit\(^{44}\) provision of RCRA, enacted in section 7002 under the 1984 amendments to RCRA, enables citizens bring a law suit to court in order to prevent harm to human health or the environment.\(^{45}\) This citizen suit provision contains the exact language of a pre-existing RCRA provision, which allowed the Administrator of the EPA to commence lawsuits against waste-producing defendants who might present harm to the environment.\(^{46}\) Initially, EPA used this power frequently, filing more than fifty actions between 1979 and 1981.\(^{47}\) Despite EPA’s active prosecution of many actions under this section, the agency failed to correct all the instances of improper waste disposal.\(^{48}\) The amendment to section 7002

\(^{41}\) *Id.* Technically, this citizen suit provision can be found in the Hazardous and Solid Waste Amendment of 1984, which was an amendment to the Solid Waste Disposal Act. However, any provision falling under the HSWA, SWDA, or RCRA is commonly referred to as RCRA. See Chambers & McCullough, *supra* note 4, at 22–23.


\(^{44}\) Citizens may also sue the Administrator of the EPA for failing to enforce non-discretionary duties under the statute, often relating to permitting schemes or labeling requirements. See RCRA, 42 U.S.C. § 6972(a)(1)(A).


\(^{46}\) See RCRA, § 7003, 42 U.S.C. § 6973(a). Several procedural differences exist between suits brought by the EPA and those brought by citizens. See Peterson, *supra* note 42, at 349. First, for citizen suits, there is a ninety-day notice requirement. *Id.* Also, if the EPA has commenced or is “diligently prosecuting” its own RCRA suit, a CERCLA section 106 action, or a CERCLA response action, the citizen suit is barred. See *id.* Furthermore, many citizen suits are prevented from the outset because private citizens often do not have the resources available to initiate a complex cause of action. See *id.* Despite these differences, due to the identical language of these two sections regarding liability, this Note will alternate between analyzing section 7002 cases and section 7003 cases. For the purpose of construing a causation standard, judicial interpretations of section 7003 will be given as much weight as those interpreting section 7002. See *Cox v. City of Dallas*, 256 F.3d 281, 294 n.22 (5th Cir. 2001).


extended this ability to citizens, giving individuals the right to assist EPA as citizen-enforcers.  

Specifically, section 7002 states that a citizen may sue “any person... who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.” Essentially, there are four elements that plaintiffs must prove: (1) the defendants “contributed to” handling of a waste; (2) such waste “may present” an “endangerment”; (3) the endangerment must be “substantial”; and (4) the endangerment must be “imminent.”

II. Section 7002 Relaxes Common Law Causation Standards

A. Section 7002’s Causation Requirements Are More Favorable to Environmental Plaintiffs Than Traditional Common Law Standards

As the above quoted language shows, Congress intended not only to give citizens a tool for enforcement, but also to lower strict notions of causation under the common law which prevented worthwhile environmental tort suits from moving forward. One way the common law limits defendant liability is through the doctrine of proximate cause, which restricts the sphere of actors that may be held liable to those with a direct role in the harm. To illustrate, an automobile repairman who flooded a plaintiff’s gas tank, thereby causing an explosion when a customer threw a match on the floor, was held not to be the proximate cause of the damage because his action did not have a direct enough

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50 A “person” has been interpreted through case law to include individual persons, owners of companies, and even cities. See Cox, 256 F.3d at 293.
51 Defendants may be liable for improperly storing, treating, disposing, or transporting solid waste. However, for purposes of this Note, all defendant actions concerning solid waste will be referred to generally as “handling.” See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B).
52 Id.
53 See S. Rep. No. 98–284, at 59 (1983). Some early cases under section 7003 held that the language of the statue simply laid out the threshold requirements of when the Administrator may seek an action in courts, but did not change substantive standards of liability. See United States v. Midwest Solvent Recovery, Inc., 484 F. Supp. 138, 144 (N.D. Ind. 1980). However, the congressional history of section 7002, discussed below, demonstrates Congress’s desire to correct these early decisions and show courts that section 7002 actually changes substantive standards of liability, especially with regard to proximate cause. See S. Rep. No. 98–284, at 59; Solid and Hazardous Waste Committee, 16 Nat. Resources Law. 309, 310 (1983–1984).
bearing on the eventual outcome. According to the court, only the negligent match thrower was the proximate cause of the damage. Section 7002 modifies standard notions of causation to be more favorable to plaintiffs in the solid waste context.

Section 7002 requires plaintiffs to prove four separate causation elements with lower proximate cause requirements than otherwise required under the common law. First, plaintiffs must prove that a defendant “contributed to” the handling of the waste in question. Second, under the “may present an imminent and substantial harm” standard, plaintiffs must establish the remaining three causational elements: (1) the endangerment is “imminent,” (2) the level of risk is sufficient to justify court action, and (3) the potential degree of harm is “substantial.” Rarely, when the waste is more common, a causation question arises as to whether the waste causing the potential harm is the same waste the defendant actually handled, or whether it is just the same type.

B. Section 7002’s Language Interpreted Broadly Based on Legislative History

1. The Phrase “Contribute To” Expands the Potential Sphere of Liable Defendants

Through the use of the phrase “contribute to,” Congress intended to broaden the traditionally narrow sphere of responsible defendants in the area of solid waste disposal. As congressional reports show, common law notions of proximate cause are not to be considered when imposing liability on defendants who may only have had a relatively small role in the improper waste disposal. Specifically, this report

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55 See id.
56 See id.
60 See Dague v. City of Burlington, 935 F.2d 1343, 1356 (2d Cir. 1991).
61 See Interfaith Cmty. Org. v. Honeywell Int’l, 399 F.3d 248, 259 (3d Cir. 2005). It may be argued that timing of harm, degree of risk, and level of harm are not actually causation questions, but fall into the category of harm. However, these cases are about stopping potential harm, not analyzing the effects of a harm that has already taken place. Thus, the “harm” that must be proven consists of predictions based on scientific research. Since the harm that must be proven is actually scientific research projecting the likely outcome of such harm, it is better to think of these elements as questions of potential causation. See S. Rep. No. 98–284, at 59 (1983).
62 See generally Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769 (10th Cir. 2009).
64 See id.
states that “terms and concepts, such as persons ‘contributing to’ the handling of the waste are to be construed more liberally than its common law counterpart.”65 Thus, while the automobile repairman who overflowed the gas and had a role in the eventual explosion escapes liability under strict proximate cause analysis, defendants who merely transport or generate the solid waste, even if not directly responsible for its improper disposal, are to be held liable under section 7002.66

Congress also intended for the “contribute to” requirement to increase the amount of time a court can look back to determine the “cause” of a specific harm.67 When Congress first authored section 7003, the EPA had the authority to sue anyone contributing to the handling of potentially harmful waste.68 When passed, the statute was unclear regarding whether the EPA had the authority to sue past contributors to the waste, or whether it was restricted to imposing liability on the current waste handler.69 In order to clarify some initial court decisions, Congress amended the statute to give the EPA or citizens the right to sue any past or present handler of waste.70 This exemplifies, again, how Congress changed the rules of proximate cause to ensure more defendants could be held liable under section 7002 than under the common law.71

Courts have adhered to Congress’s intention regarding the broad reach of the “contribute to” element.72 Courts have used this language to impose liability amongst actors along the entire chain of waste production such as generators, transporters, disposers, etc., as well as to actors far back in time.73 The element simply ensures that someone potentially liable under section 7002 actually had “a share in any act or effect” in the production of the waste, and was not simply an innocent bystander in the process.74

For example, in United States v. Aceto Agricultural Chemical Corp., the court held that the defendant Aceto Corporation contributed to the disposal of pesticides, even though the Aidex Corporation had actually

65 Id.
68 See Peterson, supra note 42, at 337.
69 See id.
71 See id.
73 See Parker v. Scrap Metal Processors, Inc., 386 F.3d 993, 1015 (11th Cir. 2004); Cox v. City of Dallas, 256 F.3d 281, 298 (5th Cir. 2001); Aceto, 872 F.2d at 1383.
74 See Aceto, 872 F.2d at 1384.
disposed of the pesticides.\textsuperscript{75} The court noted that Aceto contracted with Aidex to formulate their pesticides, retained ownership of the pesticides throughout the process, and supplied the specifications for the process to Aidex.\textsuperscript{76} These factors made it clear that Aceto had contributed to the disposal of the hazardous waste.\textsuperscript{77} Similarly, a court found the city of Dallas contributed to illegal dumping of waste at a city dump, even though the company Dallas Demolition actually disposed of the waste.\textsuperscript{78} The court reasoned that the city had also contributed to the unlawful disposal because it contracted with Dallas Demolition while knowing the illegal dumping was taking place.\textsuperscript{79} Both cases refer to the defendant’s contribution to the handling of the waste itself, not to the defendant’s contribution to the alleged harm.\textsuperscript{80}

While courts have construed the “contribute to” element broadly, courts will not hold defendants liable who can prove their role had no impact on the handling of the waste.\textsuperscript{81} In \textit{California Department of Toxic Substances Control v. Interstate Non-Ferrous Corp.}, the court refused to impose liability on a past waste handler because no evidence was introduced to establish that this specific defendant actually had any effect in the handling of the waste.\textsuperscript{82}

2. The “May Present a Substantial and Imminent Harm” Language Includes Three Additional Causation Elements

a. \textit{Timing of Harm}

In addition to the “contribute to” element, the phrase “may present a substantial and imminent harm” presents three additional causation questions that all have a relaxed proximate cause standard.\textsuperscript{83} First, section 7002 relaxes how close in time a potential harm must occur to be considered “imminent.”\textsuperscript{84} The Supreme Court made it clear that section 7002 requires an ongoing threat of harm, and does not apply to

\begin{itemize}
\item \textsuperscript{75} \textit{Id.} at 1383.
\item \textsuperscript{76} \textit{Id.}.
\item \textsuperscript{77} \textit{Id.}.
\item \textsuperscript{78} \textit{See Cox}, 256 F.3d at 296–97.
\item \textsuperscript{79} \textit{See id.}.
\item \textsuperscript{80} \textit{See id.} at 296; \textit{Aceto}, 872 F.2d at 1383.
\item \textsuperscript{81} \textit{See Cal. Dep’t of Toxic Substances Control v. Interstate Non-Ferrous Corp.}, 298 F. Supp. 2d 930, 979 (E.D. Cal. 2003).
\item \textsuperscript{82} \textit{Id.}.
\item \textsuperscript{83} RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); see \textit{Burlington N. & Santa Fe Ry. Co. v. Grant}, 505 F.3d 1013, 1020–21 (10th Cir. 2007).
\item \textsuperscript{84} RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); see \textit{Dague v. City of Burlington}, 935 F.2d 1343, 1355–56 (2d Cir. 1991).
\end{itemize}
past threats that no longer exist.\textsuperscript{85} However, only a \textit{threat} of harm must be imminent, not an actual harm itself.\textsuperscript{86} Indeed, an imminent hazard may be declared “at any point in a chain of events which may ultimately result in harm to the public,”\textsuperscript{87} and courts have made clear that section 7002 is not reserved only for emergency situations.\textsuperscript{88}

For instance, in \textit{United States v. Waste Industries, Inc.}, the court rejected the defendant’s claim that section 7002 applies only to emergency situations due to the language of the section requiring that the event be probable.\textsuperscript{89} The court stated that injunctions under section 7002 are proper when only a risk of harm exists, even though the actual harm might not occur until much later.\textsuperscript{90} Thus, the Fourth Circuit reversed the district court’s “emergency only” ruling, and held that a landfill that only presented an imminent risk of harm satisfied this element.\textsuperscript{91}

b. \textbf{Risk of Harm}

Aside from expanding the “imminence” of the harm, the “may present a substantial and imminent harm” element also alters the traditional amount of risk that plaintiffs must establish in order to prevail at both the preliminary injunction stage and at trial.\textsuperscript{92} With section 7002, Congress changed what plaintiffs must demonstrate to receive a preliminary injunction by replacing the “irreparable harm standard” of the common law with a “risk of harm” standard.\textsuperscript{93} This would facilitate more injunctions for the benefit of the environment.\textsuperscript{94} While the irreparable harm standard may be thought of as protecting defendants from the troubles of complying with an unnecessary injunction, the risk of harm standard showcases a choice to protect the environment from the unnecessary harm caused by a lack of hard science.\textsuperscript{95}

In addition to establishing a more relaxed standard for receiving an injunction, section 7002 also lowers the level of risk that plaintiffs must


\textsuperscript{86} See Dague, 935 F.2d at 1356.

\textsuperscript{87} Id. at 1355–56.

\textsuperscript{88} Id.

\textsuperscript{89} See United States v. Waste Indus., Inc., 734 F.2d 159, 165 (4th Cir. 1984).

\textsuperscript{90} See id.

\textsuperscript{91} Id. at 168.

\textsuperscript{92} RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B); see Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013, 1020–21 (10th Cir. 2007); United States v. Price, 688 F.2d 204, 211 (3d Cir. 1982).

\textsuperscript{93} See Price, 688 F.2d at 211.

\textsuperscript{94} See id.

\textsuperscript{95} See id.
demonstrate in order to prevail at trial.96 The “operative word . . . ‘may’,” when combined with the word “endangerment,” as both words are probable in nature, clearly demonstrates the low level of risk required by section 7002.97 Courts have noted that this “expansive language” proves that section 7002 does not require proof of actual harm.98 Indeed, wastes have been found to satisfy this causation element when there may be “any risk” of harm.99 Furthermore, Congress intended that if an error is to be made regarding this element of causation, it should be made as to protect human health and the environment.100

C. Degree of Harm

Aside from requiring a risk of the harm, section 7002 also requires that the degree of harm be “substantial.”101 The statute does not define “substantial,” but courts have consistently held that harm is substantial if it is “serious.”102 Further, harm is “serious” if there is reasonable concern that a person or the environment may be harmed by the waste in question.103 This element does not require that the harm be quantified in order to be substantial.104 For example, the court in Interfaith Community Organization v. Honeywell International—addressing a possible contamination of hexavalent chromium—found that the defendant’s contention that it was complying with state standards did not imply that the harm was insubstantial.105

III. RELAXED CAUSATION STANDARDS OPENED THE DOOR FOR “IMPERFECT SCIENCE” TO SATISFY PROOF OF CAUSATION

These relaxed causation standards have also changed the level of scientific proof required to win a section 7002 case because they broaden the types of proof that can establish harm.106 Specifically, section 7002 allows imperfect, or “soft,” science to serve as the basis of impos-

96 See Burlington, 505 F.3d at 1020–21.
97 See id.
98 Id.
99 See Daque v. City of Burlington, 935 F.2d 1343, 1355 (2d Cir. 1991).
102 See Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013, 1021 (10th Cir. 2007).
103 Id.
104 See Interfaith Cmty. Org., 399 F.3d at 259–60.
105 See id.
Congress endorsed a standard of causation that is less than scientific certainty by stating that “risk may be ‘assessed from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections, from imperfect data, or from probative preliminary data not yet certifiable as ‘fact.’”\(^{108}\) While Congress was well aware of the tension between imposing liability on defendants without sufficient proof, and allowing the environment to suffer due to a lack of science, Congress firmly came down on the side of the environment.\(^{109}\)

The “imperfect data” language quoted above is from *Ethyl Corp. v. EPA*, and Congress’s endorsement of this language sheds additional light on how Congress thought courts should treat issues of causation and lack of scientific certainty.\(^{110}\) *Ethyl Corp.* held that the Administrator of the EPA could promulgate rules limiting the amount of lead in gasoline, even though no hard proof existed establishing that auto emissions were the primary cause of human exposure to lead.\(^{111}\) The court noted that it is virtually impossible to isolate one source of lead and determine its effect on the body,\(^{112}\) and the lead industry argued that the lack of hard science linking human lead levels directly with auto emissions prevented EPA from enacting a rule limiting lead additives in gasoline.\(^{113}\) However, the court rejected that argument, noting that Congress understood these problems of proof when it used an “endangerment” standard, and decided that the environment or human health should not suffer due to a lack of scientific certainty.\(^{114}\) The “soft science” argument that humans derive some of their lead content from ambient air, and that auto emissions are the primary cause of lead in the ambient air, satisfied the endangerment standard.\(^{115}\) The court noted that when Congress authors a precautionary statute, courts will not require a “rigorous step-by-step proof of cause and effect.”\(^{116}\) Section 7002 also employs an endangerment standard, and thus the lessons from *Ethyl Corp.* are still very relevant to RCRA’s citizen suit.\(^{117}\)

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107 See id.

108 Id.

109 Id. “The primary intent of the provision is to protect human health and the environment.” Id.

110 See 541 F.2d 1, 28 (D.C. Cir. 1976); S. Rep. No. 98–284, at 59.

111 See Ethyl Corp., 541 F.2d at 7–8 (stating that humans have multiple sources of exposure to lead).

112 Id. at 9.

113 Id. at 12.

114 See id. at 25–26.

115 See id. at 10.

116 Id. at 27–28.

EPA has adhered to Congress’s intentions and declared that imperfect science can be used to prove that waste may present an endangerment.\textsuperscript{118} In a 1997 document explaining the phrase “imminent and substantial endangerment,” EPA lists several factors to be assessed when determining the connection between the waste and harm.\textsuperscript{119} For instance: (1) “the existence of a connection between the solid or hazardous waste and air, soil, groundwater, or surface water”; (2) “the pathway(s) of exposure from the hazardous or solid waste to the receptor population”; and (3) “the sensitivity of the receptor population.”\textsuperscript{120} Each of these factors demonstrates that an exact science linking the waste to the alleged harms will often not exist.\textsuperscript{121} Therefore, common sense indicators can be used to assess the level of risk involved.\textsuperscript{122}

Courts have also relied on “pathways of exposure” to satisfy the causation element when absolute scientific proof is lacking.\textsuperscript{123} In Interfaith Community Organization v. Honeywell International, the defendant’s chromium production site, which was possibly leaking hexavalent chromium into the Hackensack River, was held to present an endangerment in part because of the pathways of exposure between the waste and harm.\textsuperscript{124} Specifically, holes in the company’s plastic liner allowed the chromium to seep into and contaminate the groundwater.\textsuperscript{125} This kind of proof satisfied requirements of section 7002 because its primary goal is to minimize future harm to the environment even without absolute scientific proof.\textsuperscript{126}

Leister v. Black & Decker presents an example of a court correctly rejecting a section 7002 claim when plaintiffs lack proof of any risk that the waste may present an endangerment to the environment or health.\textsuperscript{127} The court held that the plaintiffs could not show a risk of harm from the industry defendant’s solid waste because the plaintiffs had a filtration system for their water which eliminated the risk.\textsuperscript{128} The court did not hold plaintiffs to a standard of actual harm, but rather,}

\textsuperscript{119} Id.
\textsuperscript{120} Id.
\textsuperscript{121} See id.
\textsuperscript{122} See id.
\textsuperscript{124} Id.
\textsuperscript{125} Id.
\textsuperscript{127} See No. 96–1751, 1997 WL 378046, at *3 (4th Cir. July 8, 1997).
\textsuperscript{128} Id.
consistent with the language of section 7002, held that plaintiffs were not entitled to relief because not even a risk of harm existed.\textsuperscript{129}

\section*{IV. The New Causation Question—Linking Ubiquitous and Natural Wastes to Specific Defendants}

For most of section 7002’s history, proving the above elements—contribution to the handling of solid waste, and that this type of waste may present an imminent and substantial endangerment to the environment—satisfied the question of causation.\textsuperscript{130} It was rare for courts to require plaintiffs to prove a link between the waste causing harm and the waste handled by a specific defendant on his property, because the uncommon and specific materials usually at issue under this section could not have come from anywhere else.\textsuperscript{131}

For example, when the plaintiffs in \textit{United States v. Aceto Agricultural Chemical Corp.} alleged that the pesticides leaking from the defendant’s property were contaminating their adjacent property, it was obvious the pesticides in the contaminated area were the same as the pesticides handled by the defendant.\textsuperscript{132} In the case of \textit{Aurora National Bank v. Tri Star Marketing, Inc.}, the petroleum and kerosene handled by the defendants at their gas station were obviously the same petroleum and kerosene contaminating the same property that the plaintiffs now owned.\textsuperscript{133} These cases illustrate that most of the wastes litigated under section 7002 just could not have come from anywhere else.\textsuperscript{134}

However, when plaintiffs use section 7002 to sue over a more common and ubiquitous solid waste, an additional causation question arises: is the waste that is harming the environment actually the same waste that was handled by the defendants on site, or has the waste harming the environment come from other industries, the environment, or a combination?\textsuperscript{135}

At least one EPA action shows that EPA believes RCRA can impose liability in the realm of ubiquitous wastes.\textsuperscript{136} In 2006, EPA filed a complaint under section 7003 against Seaboard Foods because their con-

\textsuperscript{129} \textit{Id.}
\textsuperscript{130} See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); \textit{supra} Part III.
\textsuperscript{131} See generally ABB Indus. Sys., Inc. v. Prime Tech., Inc., 120 F.3d 351 (2d Cir. 1997) (perchloroethylene found on site resulting from defendant’s circuit board manufacturing process); Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013 (10th Cir. 2007) (tarlike material contaminating property adjacent to an oil refinery).
\textsuperscript{132} See 872 F.2d 1373, 1375 (8th Cir. 1989).
\textsuperscript{133} See 990 F. Supp. 1020, 1022 (N.D. Ill. 1998).
\textsuperscript{134} See, e.g., \textit{Aceto}, 872 F.2d at 1375; \textit{Aurora}, 990 F. Supp. at 1022.
\textsuperscript{135} See, e.g., Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769 (10th Cir. 2009).
\textsuperscript{136} See Complaint, \textit{supra} note 2.
centrated animal feeding operations (CAFOs) were presenting an imminent threat to the environment by increasing the amount of nitrate and ammonia in ground water, a naturally occurring byproduct of CAFOs. EPA believed that Seaboard Foods was liable under section 7003 even though it can be very difficult to prove concretely that a naturally occurring and ubiquitous waste is coming from a specific defendant rather than other sources. A court never ruled on the merits of this case. However, one recent case serves as a helpful illustration of the way courts are starting to deal with this issue.

A. Oklahoma v. Tyson Foods, Inc. Illustrates RCRA’s New Causation Question

In 2005, the State of Oklahoma filed a complaint against several poultry processors (Tyson Foods) under section 7002 seeking a preliminary injunction to halt the application of “poultry litter” fertilizer on the ground within the Illinois River Watershed (IRW). The State alleged that the poultry processors were responsible for applying large quantities of poultry waste on the land within the IRW, which adversely affects the water quality of the IRW, as well as the humans who swim in it. Oklahoma’s motion for preliminary injunction was denied on causation grounds. The court found that Oklahoma failed to establish that the bacteria found in the Illinois River was actually the same bacteria.

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137 Id.
138 See id.; Steilacoom Lake Improvement Club, Inc. v. Washington, 138 F. App’x. 929, 933 (9th Cir. 2005).
140 See generally Tyson Foods, 565 F.3d at 773.
141 Poultry litter is the material leftover from the bedding in poultry operations, and consists primarily of poultry manure, but also includes other materials such as spilled feed and dried feathers. See id. at 774.
142 See id. at 773.
143 See Complaint, supra note 2, at 1. Poultry litter contains fecal-indicator bacteria such as E. coli, which suggest the presence of other harmful bacteria that can cause disease outbreaks if the water is ingested by recreational users. See William J. Andrews et al., Summary of Surface-Water Quality Data from the Illinois River Basin in Northeast Oklahoma, 1970–2007, at 14–24 (2009). Poultry litter is also high in nutrients, such as nitrogen and phosphorus, which create unnatural algae bloom if the levels are too high. See id. This heightened amount of algae can cause numerous adverse effects on the environment, such as decreasing the amount of oxygen in the water enough to suffocate some animals. See id. For purposes of this Note, all bacteria and nutrients contained in poultry litter will be referred to collectively as “bacteria.”
144 Although the injunction could have been decided on a number of grounds, it was expressly denied due to a lack of specific causation. See Oklahoma ex. rel. Edmondson v. Tyson Foods, Inc., No. 05-CV-329-GKF-SA, 2008 WL 4453098, at *4 (N.D. Okla. Sept. 29, 2008).
ria from the poultry litter handled by the defendants.\footnote{See id.} The denial of preliminary injunction was confirmed in an interlocutory appeal.\footnote{See Tyson Foods, 565 F.3d at 774.} The case eventually moved on to trial and was decided on different grounds—specifically that poultry litter is not solid waste as defined under RCRA.\footnote{See Oklahoma v. Tyson Foods, Inc., No. 05-CV-0329-GFK-PJC, 2010 WL 653032, at *11–12 (N.D. Okla. Feb. 17, 2010). Because the trial court reached its conclusion based on the definition of solid waste and not causation, this Note does not advocate for a specific ruling in this case. However, the factual scenario presents an interesting question of causation that is bound to repeat itself if more citizen suits are directed at ubiquitous wastes. See discussion infra Part V.} Nonetheless, the denial of a preliminary injunction in \textit{Tyson Foods} is a helpful illustration of the facts that lead to a new causation question for ubiquitous wastes under RCRA. This new causation question—how to link a ubiquitous waste to a specific defendant—is likely to repeat itself in the future.\footnote{See id. Another case with a similar causation question was \textit{Steilacoom Lake Improvement Club v. Washington}. See 138 F. App’x 929, 931 (9th Cir. 2005). In that case, the plaintiff environmental group sued various counties of Washington and the United States because the counties’ land allegedly was increasing the amount of phosphorus in Steilacoom Lake and causing water-quality problems. See id. Unlike \textit{Tyson}, the court decided the case on causation grounds, even though the judge also declared that the phosphorus was not producing an imminent harm. \textit{Id.} The judge was most concerned that the plaintiffs could not link any specific defendant, or specific source, to the heightened amount of phosphorus. See \textit{id.} The plaintiffs did present expert testimony linking increased human activity over a period of fifty years to heightened phosphorus in the lake. See Brief for Appellant at 10–11, Steilacoom Lake Improvement Club v. Washington, No. 03–35888, 138 F. App’x 929 (9th Cir. July 22, 2004). However, as \textit{Steilacoom and Tyson Foods} illustrate, it is very difficult to trace a ubiquitous and naturally occurring “waste” to its original source. See 138 F. App’x at 931–32; \textit{Tyson Foods}, 2008 WL 4453098, at *4.} From this point forward, this Note will refer to linking a ubiquitous waste to a specific defendant as “\textit{Tyson’s causation question}.”

Before making its determination on the preliminary injunction, the court excluded two expert witnesses who attempted to establish a foolproof “link” between poultry litter bacteria and Illinois River bacteria.\footnote{See Tyson Foods, 2008 WL 4453098, at *3. The court applied the \textit{Daubert} test to exclude the testimony of Dr. Olsen and Dr. Harwood. The court determined that this scientific research was excluded under \textit{Daubert} because it had not been peer reviewed. \textit{Id.}} Specifically, two scientists compared the DNA of bacteria in the Illinois River and bacteria in poultry litter, and argued that it was a match.\footnote{See Att’y Gen. of Okla. v. Tyson Foods, Inc., 565 F.3d 769 (10th Cir. 2009); \textit{Tyson Foods}, 2008 WL 4453098, at *3.} For this court, the decision to exclude evidence of the DNA link between poultry litter bacteria and the Illinois River bacteria effectively decides the causation question, because, without this evidence, no
hard scientific proof connected the IRW bacteria and bacteria from the defendant’s property.  

The court did, however, admit evidence that suggested a possible connection between poultry litter and the Illinois River bacteria. Specifically, evidence showed that poultry producers apply poultry litter directly to the land, and this portion of the IRW has karstic geology—fractured and partially dissolved, with fissures, sinkholes, underground streams, and caverns. The karstic geology of the surrounding land is related to legitimate risk factors such as clear pathways of exposure and the sensitivity of the receiving population. Moreover, Oklahoma presented the fact that state and federal authorities, and many independent organizations, all believed that bacteria from poultry litter was entering the Illinois River.

In sum, Oklahoma did not possess any concrete scientific proof that the bacteria in the Illinois River was actually the same bacteria that originated at the poultry processor’s property, but rather only presented “soft” scientific theories and projections. The court reasoned from prior case law that there must be “some level of causation between the contamination and a party to be held liable.” Moreover, “it is not enough [to contribute] to solid waste that was handled” because the “‘contribution’ must be causally connected to the possibility of an ‘imminent and substantial endangerment.’” A more difficult question, however, is what kinds of proof of this connection are sufficient to impose liability under section 7002?

V. Oklahoma v. Tyson Foods, Inc.’s Causation Question Should Have a Lower Standard of Proof Than the Common Law

When linking a ubiquitous waste to a specific defendant (“Tyson’s causation question”), this new causation question should be considered using the same low proximate cause standard used throughout the rest of the statute. This analysis is supported by courts’ interpretation of

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151 See Tyson Foods, 565 F.3d at 769; Tyson Foods, 2008 WL 4453098, at *3.
152 See Tyson Foods, 565 F.3d at 786 (Ebel, J., dissenting).
153 See id.
154 See id.; EPA RCRA Guidance, supra note 118, at 11.
155 See Brief for Appellant at 6 n.4, Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769 (10th Cir. 2009) (No. 08–5154).
158 Id.
159 See id.
160 See supra Parts II, III.
the statute, based on the legislative intent behind section 7002, and by the EPA’s current position on this specific question.\textsuperscript{161}

A. Section 7002’s Expansion of the Phrase “Contribute To” Should Also Guide Tyson’s New Causation Question

Tyson’s causation question should be decided by a relaxed proximate cause standard in order to be consistent with other similarly relaxed standards of proximate cause used in section 7002.\textsuperscript{162} The causational question surrounding whether a defendant “contributed to” the handling of the waste is more expansive than its common law counterpart.\textsuperscript{163} The “contribute to” element expanded the chain of actors that may be reached under proximate cause, both in terms of participation in the process and in the time period considered.\textsuperscript{164} Since Congress wanted to broaden the scope of liable defendants, they clearly chose the environment over the risks created by low causation standards.\textsuperscript{165} Thus, for Tyson’s causation question, courts should infer that Congress did not want to prevent lawsuits from going forward for a lack of concrete scientific proof.\textsuperscript{166}

It is settled that the “contribute to” element requires “some causal connection between the defendant’s action and the alleged harm.”\textsuperscript{167} Some defendants encourage, and the court in Tyson Foods agreed, that “contribute to” requires actual, and a higher degree of, proof of causation between a specific waste and a specific defendant.\textsuperscript{168} However, while the “contribute to” element may indicate the need for a causal relationship, it should not require a level of proof of causation higher than that employed by the rest of the statute.\textsuperscript{169} This is true because while “contribute to” may suggest a causal relationship between the defendant and the harm, that was not the true intention of the language.\textsuperscript{170} The main reason for the inclusion of the “contribute to” element was to broaden the scope of actors who can be held liable.\textsuperscript{171}

\textsuperscript{161} See RCRA, § 7002, 42 U.S.C. § 6972(a)(1)(B) (2006); Dague v. City of Burlington, 935 F.2d 1343, 1356 (2d Cir. 1991); EPA RCRA GUIDANCE, supra note 118, at 11.
\textsuperscript{168} See Att’y Gen. of Okla. v. Tyson Foods Inc., 565 F.3d 769, 777 (10th Cir. 2009).
\textsuperscript{170} See H.R. Rep. No. 98–1133, at 119.
\textsuperscript{171} See id.
same language that expands a defendant’s liability in contributing to
the waste should not also restrict a defendant’s liability by increasing
the level of proof needed to establish the causal link between harm and
specific defendants required in another area.  

B. The Remaining Causation Elements Also Demonstrate that Section 7002 is
Exclusively Governed By Relaxed Standards of Causation

Further evidence that Tyson’s causation question should be de-
cided by the same relaxed proximate cause standard as other parts of
the statute is the lower level of risk needed to obtain a preliminary in-
junction. By switching to the “risk or harm” standard rather than “ir-
reparable harm,” Congress demonstrated its willingness to relinquish
the traditional safeguards of the common law regarding impeding the
actions of innocent defendants. Tyson’s causation question should
also benefit from the same congressional reasoning. While under the
common law “irreparable harm” was required before imposing liability
on defendants to protect them from unwarranted lawsuits, section 7002
deliberately weakens these safeguards in order to further the important
cause of regulating solid wastes. Allowing Tyson’s causation question
to be decided in the same fashion as the preliminary injunction stan-
dard would facilitate Congress’s goals.

Also, the low level of risk that plaintiffs must prove demonstrates
that Tyson’s causation question should be considered under a relaxed
proximate cause standard. Instead of actual harm, section 7002 re-
quires defendants to alter their practices if their waste disposal presents
any risk of harm to the environment. Thus, it would be contradictory
to require concrete scientific proof to link specific defendants to ubiq-
uitous wastes, because it is not required to establish the risk of harm.
Tyson’s causation element should be resolved consistent with Congress’s
choice to protect the environment over the risk of imposing liability in
cases with no actual harm.

172 See id.
173 See United States v. Price, 688 F.2d 204, 211 (3d Cir. 1982).
174 See id.
175 See id.
176 See id.
177 See id.
178 See Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013, 1020 (10th Cir. 2007).
179 See id.
180 See id.
181 See id.
Additionally, the fact that section 7002 permits soft science to prove the above causational elements suggests that soft science should also be able to prove *Tyson’s* new causation question.\textsuperscript{182} Again, section 7002 changes the common law standard of causation, making the deliberate choice to risk inaccuracy in favor of expanded liability and responsibility for defendants acting in the realm of solid and hazardous waste.\textsuperscript{183} This desire to allow imperfect data to satisfy causational standards can be seen in the congressional history of the statute.\textsuperscript{184} It can also be seen in cases where the court has not required concrete evidence of causation questions.\textsuperscript{185} Allowing soft science to link ubiquitous wastes to specific defendants would adhere to the intentions of Congress and the courts.\textsuperscript{186}

\textbf{C. EPA Actions Demonstrate That it Does Not Require Actual Proof to Link a Ubiquitous Waste to a Specific Defendant}

Although Congress did not directly consider *Tyson’s* question during RCRA’s passage, the EPA has over time indicated that it feels ubiquitous wastes need not be linked through concrete scientific proof.\textsuperscript{187} The EPA’s 1997 document regarding section 7003 indicates that the EPA felt soft sciences could be used to prove questions of causation under this section.\textsuperscript{188} They also have sued defendants responsible for ubiquitous wastes which could have come from other locations even when they did not have hard scientific proof of a link between the defendant and the waste.\textsuperscript{189} EPA’s complaint against Seaboard Foods, where the amount of nitrate in groundwater could have come from other sources, strongly suggests that the EPA does not read into section 7002 a requirement that ubiquitous wastes be linked to defendants through concrete proof.\textsuperscript{190} EPA knows the best way to address issues of complex causation to ensure a fair balance between imposing liability on responsible actors, and protecting the environment in the spirit of RCRA; its interpretation of section 7002 should be given deference.\textsuperscript{191}

\textsuperscript{183} See id.
\textsuperscript{184} See id.
\textsuperscript{185} See, e.g., Interfaith Cmty. Org. v. Honeywell Int’l, 399 F.3d 248, 259 (3d Cir. 2005).
\textsuperscript{187} See Complaint, supra note 2.
\textsuperscript{188} See EPA RCRA GUIDANCE, supra note 118, at 11.
\textsuperscript{189} See Complaint supra note 2.
\textsuperscript{190} See id.
\textsuperscript{191} See id.
D. Tyson’s Reasoning on this Issue Presents an Example of an Incorrect Interpretation of the New Causation Question Under Section 7002

With this principle in mind regarding Tyson’s causation question, the opinion of the district court provides a useful illustration of the wrong way to answer the question, and the consequences that stem from that error.\textsuperscript{192} Throughout its opinion, the district court uses language which reveals that it erroneously required absolute proof that Tyson Foods contributed to the alleged harm.\textsuperscript{193} The opinion begins by stating, “[t]he State has not yet met its burden of proving that bacteria in the waters of the IRW are caused by the application of poultry litter rather than by other sources.”\textsuperscript{194} A statement that accurately reflects the “may present” causational standard would read: “The State has not yet met its burden of showing that poultry litter may present an imminent and substantial endangerment to human health or the environment.”\textsuperscript{195} The court then concluded its opinion with: “[T]he State has failed to meet the applicable standard of showing that the bacteria levels in the IRW can be traced to the application of poultry litter.”\textsuperscript{196} The most revealing word in that sentence is “traced,” since it suggests that the district court required dispositive scientific proof that the bacteria in the river came from the poultry litter.\textsuperscript{197}

Further evidence that the district court mistakenly required the plaintiffs to establish concrete scientific proof is that a substantial portion of the opinion is dedicated to the exclusion of two expert witnesses who attempted to establish this foolproof “link” between poultry litter bacteria and Illinois River bacteria.\textsuperscript{198} This demonstrates that the court incorrectly held plaintiffs to a standard of scientific certainty by declaring that there was no proof that defendants “contributed to” the bacteria causing the harm.\textsuperscript{199}

Contrary to the opinion of the Tenth Circuit, the court did not use the correct causational standard since, if it had, it would have been obligated to address the admitted evidence that suggested a possible connection between poultry litter and the Illinois River bacteria.\textsuperscript{200}

\textsuperscript{193} See id. at *1, *3.
\textsuperscript{194} See id. at *3.
\textsuperscript{196} See Tyson Foods, 2008 WL 4453098, at *3.
\textsuperscript{197} See Tyson Foods, 565 F.3d at 784; Tyson Foods, 2008 WL 4453098, at *3.
\textsuperscript{198} See Tyson Foods, 2008 WL 4453098, at *1–3.
\textsuperscript{199} See id.
\textsuperscript{200} See Tyson Foods, 565 F.3d at 786 (Ebel, J., dissenting).
theless, as the dissent notes, although two expert opinions were excluded, the court did admit evidence that poultry producers apply poultry litter directly to the land, that this portion of the IRW is karstic, and that state and federal authorities, and many independent organizations, all believed that bacteria from poultry litter was entering the Illinois River. 201 This is not to say that this evidence is dispositive on the issue. However, at the very least, if the court was using the correct causational standard of probability, it should have addressed this evidence and explained why it felt that this evidence did not establish that poultry litter may present an endangerment to human health or the environment.202

The other side of this argument, of course, is the charge that by not requiring scientific links between harms and defendants, courts will be imposing liability on possibly innocent defendants, and thus imposing a disproportional burden of waste cleanup on them.203 Certainly this argument is true. By lowering standards of proximate cause and levels of scientific proof, it opens the door to more defendants being mistakenly held liable.204 On the other hand, it also opens the door for better environmental protection for real harms when no scientific proof of their causes exists.205 When deciding Tyson’s causation question, like the other questions of causation answered by the courts under section 7002, a choice needs to be made between accurate liability and unaddressed or unproven harms.206 In addition to the broad construction of other causation questions, courts should remember the broad policy decisions behind the initial passage of RCRA, understanding that while steps have been made, RCRA’s original purpose is just as strong today.207 The general purpose of the act was to protect the environment through a statute with a low threshold of liability.208 RCRA came at a time when Congress was reacting to the solid and hazardous waste problem that it believed was reaching crisis level proportions.209 RCRA represented a substantial overhaul of the way the United States treats solid waste and a refusal to turn a blind eye to problems just because they are not in plain sight.210 Congress intentionally chose to reform

201 See id. at 786–87 (Ebel, J., dissenting).
202 See Tyson Foods, 565 F.3d at 788 (Ebel, J., dissenting).
204 See id.
206 See Interstate Non-Ferrous Corp., 298 F. Supp. 2d at 979.
207 See Riesel, supra note 30, at 232.
208 See id.
the way the country handled solid waste in response to an increasingly complicated, technological, and chemically filled world without guarantees of scientific certainty.\textsuperscript{211} Congress’s choice of the environment over the risk of assigning some defendants unwarranted liability is as relevant and important today as it was in 1976.\textsuperscript{212}

\section*{Conclusion}

The Resource Conservation and Recovery Act presented a watershed moment in American waste regulation by overhauling the existing regulatory program and implementing one of the EPA’s most complex regulatory schemes.\textsuperscript{213} The Hazardous and Solid Waste Amendments of 1984 represented Congress’s impatience with EPA’s progress, and its desire that citizens play a larger role in waste regulation.\textsuperscript{214} Based on Congress’s clear, laudable, and even dramatic intentions, courts have liberally construed RCRA’s citizen suit provision, making it easier for environmental plaintiffs to both get into court, and win once there.\textsuperscript{215} Specifically, standards of proximate cause under the common law—which had been frustrating plaintiffs in highly technical cases—were replaced with standards of substantive liability decidedly pro-plaintiff and anti-waste industry.\textsuperscript{216}

It is easy to forget these lofty goals when we move away from the dangerous sounding materials at the center of incidents like Love Canal, and focus on less dangerous sounding, but equally harmful, “natural wastes.” However, focusing on the proper management of natural wastes may just be the next step in ridding America’s land and water from the harmful effects of waste disposal. Additionally, citizen suits may lead the way in this new area of section 7002. Using section 7002 to stop defendants from improperly disposing natural waste will indeed include new questions of science and causation, and will test the court’s limits as to how far “soft science” may be allowed to go in order to impose liability on defendants.\textsuperscript{217} However, courts should not forget the United States has faced these decisions before. Congress and the courts

\begin{itemize}
\item \textsuperscript{211} See id.; Riesel, supra note 30, at 232.
\item \textsuperscript{212} See S. Rep. No. 98–284, at 59; Riesel, supra note 30, at 232.
\item \textsuperscript{213} See Chambers & McCullough, supra note 4.
\item \textsuperscript{214} See RCRA, 42 U.S.C. §§ 6917–6992k (2006).
\item \textsuperscript{215} See Dague v. City of Burlington, 935 F.2d 1343, 1356 (2d Cir. 1991); S. Rep. No. 98–284, at 59.
\item \textsuperscript{216} See Burlington N. & Santa Fe Ry. Co. v. Grant, 505 F.3d 1013, 1020–21 (10th Cir. 2007); S. Rep. No. 98–284 at 59.
\end{itemize}
have expanded traditional defendant liability and allowed relaxed causalional standards to govern in every conceivable question of causation yet litigated under this section.\textsuperscript{218} The causation decision regarding natural wastes and their link to a specific defendant should be decided the same way. While defendants will not be liable when no evidence is offered against them, the environment should not suffer because science cannot yet establish the level of certainty required by common law notions of causation.\textsuperscript{219}


\textsuperscript{219} See id.