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Developments in the D.C. Circuit's Article III Standing Analysis: When Is an Increased Risk of Future Harm Sufficient to Constitute Injury-in-Fact in Environmental Cases?

by Cassandra Sturkie and Nathan H. Seltzer

Editors' Summary: The federal courts of appeal are currently engaged in debate over the increase in probability of future harm that must be demonstrated by petitioners to establish a cognizable injury for Article III standing purposes. Two recent decisions in the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit—one withdrawn and replaced by the other—may herald a new, quantitative approach to standing analysis with great implications for environmental law. In this Article, Cassandra Sturkie and Nathan Seltzer review these D.C. Circuit developments and what they mean for cases in which purely "probabilistic" environmental or health injuries are alleged. They examine the constitutional requirement of injury-in-fact and the D.C. Circuit's unique precedent in cases involving increased risk of future harm. They discuss the striking differences in the court's position and tone in the NRDC I *and* NRDC II *cases. Finally, they conclude with lessons for environmental law practitioners and their clients.*

I. Introduction

It is well established that an increased risk of future harm may qualify as an "injury-in-fact" sufficient to establish Article III standing. More uncertain, however, is the increase in *probability* of future harm that petitioners must demonstrate to establish a cognizable injury. This issue is the subject of a simmering dispute in the courts of appeals, which has been reignited by recent developments in the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit. As the courts of appeals stake out divergent positions, the D.C. Circuit's rigorous treatment of this issue has the potential to usher in a new era of probative, quantitative standing analysis, and thus has important implications for environmental law practitioners and their clients in suits where increased health or environmental risks are alleged. Because the D.C. Circuit has exclusive jurisdiction over challenges under many federal environmental statutes through those statutes' "direct review" provisions, the D.C. Circuit's demonstrated willingness to take a more stringent approach than other courts of appeals is particularly significant.

In March 2006, the D.C. Circuit went on record in *Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency* (*NRDC I*)[1] as part of the minority in the circuit split on this issue. In a forceful and, at times, surprisingly unabashed opinion authored by Judge A. Raymond Randolph and joined by Judges Karen LeCraft Henderson and Harry T. Edwards, the court held that the Natural Resources Defense Council, Inc. (NRDC) failed to demonstrate that its members were sufficiently likely to suffer an injury-in-fact caused by a regulation promulgated by the U.S. Environmental Protection Agency (EPA) (the Final Rule). To reach that conclusion, the court made its own risk calculations and determined that the NRDC's asserted injury—an increase in the risk of death, skin cancer, and other ailments suffered by its members—had such a low likelihood (or "probability") of occurring that any risk of harm could only be described as "infinitesimal."[2] This opinion was short-lived; no sooner had the court broken new ground in *NRDC I* than it granted panel rehearing, withdrew its original opinion, and reissued a muted decision in *Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency* (*NRDC II*)[3] in which the court held that the NRDC did, in fact, have standing.[4] Although the court attributed its highly unusual self-reversal to new information provided by the NRDC and EPA, its actions were spurred by a mathematical error in the

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1. 440 F.3d 476, 36 ELR 20051 (D.C. Cir. 2006), *withdrawn*, 2006 U.S. App. LEXIS 22512, *on reh'g*, 464 F.3d 1 (D.C. Cir. 2006).
2. *Id.* at 482.
3. 464 F.3d 1, 36 ELR 20181 (D.C. Cir. 2006), *reh'g en banc denied*, 2007 U.S. App. LEXIS 3963 (D.C. Cir. Feb. 21, 2007).
4. *Id.*

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court's risk calculations that, in the NRDC's view, significantly understated the risk of harm to its members from EPA's Rule.

This Article reviews the D.C. Circuit's disparate tone and holdings in *NRDC I* and *II* and considers the role of quantitative risk assessments in standing analyses. Considering the lessons from *NRDC I*, this Article advances the position that not every de minimis increase in the risk of future harm is an injury of constitutional magnitude, and that quantitatively assessing the likelihood of probabilistic environmental and health injuries is, in most cases, appropriate.

Part II of this Article briefly reviews the Article III requirement of injury-in-fact and the D.C. Circuit's own unique evidentiary requirements for petitioners (the "plaintiffs" in cases involving direct review of administrative actions) to establish standing. Injury-in-fact, as described by the U.S. Supreme Court in *Lujan v. Defenders of Wildlife*,[5] is typically the focus for courts analyzing whether plaintiffs alleging an increased risk of future harm have standing, and accordingly, is the focus of this Article. Part III discusses the D.C. Circuit's precedent in cases where parties have alleged that government action or inaction will increase their risk of future harm. Part IV analyzes the D.C. Circuit's decision in *NRDC I*, and the striking shift in the court's tone following rehearing by the panel in *NRDC II*. Finally, Parts V and VI offer lessons for environmental law practitioners and their clients from *NRDC I*—a decision that, while technically withdrawn, has continuing significance in cases where standing hinges on allegations of an increased risk of future harm.

II. Article III Standing and the Injury-in-Fact Requirement

Article III, §2 of the U.S. Constitution limits the jurisdiction of federal courts to "cases" and "controversies."[6] Before a plaintiff may invoke federal jurisdiction, the plaintiff must demonstrate—through the doctrine of standing—that its case satisfies this case-or-controversy requirement and is therefore "'appropriately resolved through the judicial process.'"[7] For an organization to establish Article III standing, it must demonstrate that at least one of its members has standing to sue in his or her own right and that the interests the organization seeks to protect are germane to its purpose.[8] The organization's member, in turn, must meet the three elements of Article III standing described by the Supreme Court in *Lujan*: injury-in-fact, causation, and redressability.[9] Under *Lujan*, if a plaintiff demonstrates "an injury-in-fact, causally linked to the alleged unlawful conduct, which is likely to be redressed by a favorable decision of the court," she has satisfied the "'irreducible constitutional minimum of standing.'"[10] The burden of meeting this standard is squarely on the plaintiff, increasing in "manner and degree" in successive stages of litigation "in the same way as any other matter on which the plaintiff bears the burden of proof."[11] In the D.C. Circuit, a petitioner whose standing is not "self-evident" is required to "establish its standing by the submission of its arguments and any affidavits or other evidence" at the "first appropriate point in the review proceeding."[12]

The injury-in-fact requirement is case-specific, "turn[ing] on the nature and source of the claim asserted"[13] and "whether the complainant has personally suffered the harm."[14] Moreover, the alleged harm must be "concrete and particularized" and "actual or imminent, not conjectural or hypothetical."[15] These qualifiers ensure that courts address only cases and controversies in which the plaintiff is "in a personal and individual way"[16] "immediately in danger of sustaining some direct injury,"[17] thus avoiding advisory opinions in matters "in which no injury would have occurred at all."[18]

Similarly, the actual or imminent prong of the injury-in-fact requirement ensures that the injury asserted is "'*certainly* impending'" and thus "not too speculative."[19] The Supreme Court has observed that imminent harm encompasses "threatened," in addition to "actual," injury.[20] But if a plaintiff cannot demonstrate that he has already suffered actual harm, demonstrating the imminence of that harm is a critical step towards establishing Article III standing.[21] At a minimum, an injury that may occur "at some indefinite future time" is not imminent, as the Court established in *Lujan* when it held that the plaintiffs' intent to visit another country "in the future" "stretched" the "somewhat elastic concept" of imminence "beyond [its] breaking point."[22]

By requiring plaintiffs to demonstrate an injury in a "concrete factual context,"[23] courts avoid claims involving "only

5. 504 U.S. 555, 22 ELR 20913 (1992).
6. *Id.* at 559-60.
7. *Id.* at 560 (quoting Whitmore v. Arkansas, 495 U.S. 149, 155 (1990)).
8. *See, e.g.*, Sierra Club v. EPA, 292 F.3d 895, 898, 32 ELR 20760 (D.C. Cir. 2002) (citing Hunt v. Washington State Apple Adver. Comm'n, 432 U.S. 333, 342-43 (1977)).
9. *See* 504 U.S. at 555.
10. Humane Soc'y of the United States v. Babbitt, 46 F.3d 93, 96, 25 ELR 20612 (D.C. Cir. 1995) (quoting *Lujan*, 504 U.S. at 560).
11. *Lujan*, 504 U.S. at 561 (citing Lujan v. National Wildlife Fed'n, 497 U.S. 871, 883-89, 20 ELR 20962 (1990)). As noted above, the plaintiff's burden of production is on a sliding scale, beginning at the pleading stage where the court "presum[es] that [the plaintiff's] general allegations embrace the specific facts . . . necessary to support the claim." *Id.* At the summary judgment stage, however, the plaintiff "must 'set forth' by affidavit or other evidence 'specific facts'[,] . . . which for purposes of the summary judgment motion will be taken as true." *Id.* (quoting Fed. R. Civ. P. 56(e)). On appeal, the D.C. Circuit reviews de novo a dismissal for lack of standing. *See, e.g.*, National Wrestling Coaches Ass'n v. Department of Education, 366 F.3d 930, 937 (D.C. Cir. 2004).
12. *Sierra Club*, 292 F.3d at 900; *see also* D.C. Circuit Rule 28(a)(7) (codifying the evidentiary standing requirements set forth in *Sierra Club*, 292 F.3d at 900-01).
13. Raynes v. Byrd, 521 U.S. 811, 818 (1997).
14. Wilderness Soc'y v. Alcock, 83 F.3d 386, 390, 26 ELR 21401 (11th Cir. 1996).
15. *Lujan*, 504 U.S. at 560 (quoting Whitmore v. Arkansas, 495 U.S. 149, 155 (1990)) (internal quotations omitted).
16. *Id.* at 560 n.1.
17. City of Los Angeles v. Lyons, 461 U.S. 95, 102 (1983).
18. *Lujan*, 504 U.S. at 564 n.2.
19. *Id.* (quoting *Whitmore*, 495 U.S. at 158) (emphasis added); *see also* American Chemistry Council v. Department of Transp., 468 F.3d 810, 36 ELR 20210 (D.C. Cir. 2006).
20. *See* Valley Forge Christian Coll. v. Americans United for Separation of Church & State, 454 U.S. 464, 472 (1982) (quoting Gladstone, Realtors v. Village of Bellwood, 441 U.S. 91, 99 (1979)).
21. *Lujan*, 504 U.S. at 564 n.2 (noting that in such a case, "its imminence (though not its precise extent) must be established").
22. *Id.*
23. *Valley Forge*, 454 U.S. at 472.

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. . . generally available grievances" shared by other members of the public, which are better redressed by the legislative branch.[24] This is typically not a concern when the plaintiff "is himself an object of the action (or foregone action) at issue" because "there is . . . little question that the action or inaction has caused him injury."[25] But when the "asserted injury arises from the government's allegedly unlawful regulation (or lack of regulation) of *someone else*"—such as when a petitioner challenges environmental regulations but is not regulated by them—"standing . . . is ordinarily 'substantially more difficult' to establish."[26] Indeed, the Supreme Court has held that "much more is needed" in terms of the "nature and extent of facts . . . averred" to show that the petitioner will be affected by the alleged injury "in such a manner as to produce causation."[27] Petitioners seeking review of government action thus routinely submit affidavits or declarations with their opening merits brief to establish their standing, if their standing has not first been challenged in a motion to dismiss.[28] The nature of this showing and, in particular, the appropriate line between allegations of increased risk that establish an "actual or imminent" injury versus a speculative or hypothetical injury has led to the current split in the courts of appeals.

III. The D.C. Circuit's Treatment of Injury-in-Fact Where Parties Allege an Increased Risk of Future Harm From Government Action or Inaction

The Supreme Court and various courts of appeals, including the D.C. Circuit, have observed that a petitioner's standing to challenge government action or inaction may be sufficiently clear so as to require only basic substantiation, such as where individuals or members of environmental organizations face a concrete risk of harm due to their location in areas affected by the government's decision.[29] For example, in *Covington v. Jefferson*,[30] the U.S. Court of Appeals for the Ninth Circuit held that landowners alleging that local health departments had violated the Resource Conservation and Recovery Act (RCRA) had standing.[31] Because the landowners lived "down-gradient" from the landfill at issue, "any groundwater contamination at the landfill would flow directly toward [petitioners'] property."[32] The Ninth Circuit reasoned that "[v]iolations of RCRA increase the risks of . . . injuries to [petitioners]" and "are in no way speculative when the landfill is [their] next-door neighbor"; furthermore, the alleged violations "affect[ed] their enjoyment of their home and land."[33] Similarly, in *Friends of the Earth, Inc. v. Gaston Copper Recycling Corp.*,[34] the en banc U.S. Court of Appeals for the Fourth Circuit held that "a property owner in the path of a toxic discharge whose injury is ongoing" is "precisely the type of plaintiff . . . envisioned in *Lujan* . . . namely, one who is acting to protect a 'threatened concrete interest of his' own."[35]

In other cases, however, where petitioners allege an increased risk of future harm but have neither suffered actual harm nor can demonstrate a direct nexus with an affected geographic area, their standing is often less clear. In these cases, such as when environmental organizations argue that a broad federal rule is not protective enough, petitioners may have greater difficulty demonstrating that the new regulations or other challenged federal action will cause a concrete injury to their particularized interests—as opposed to their merely disagreeing with the agency's regulatory choices or having a generalized interest shared by the public.[36] To satisfy the constitutional requirements described in *Lujan* and to preserve the separation of powers, petitioners must be able to adduce facts supporting both their asserted injury and each step of the purported causal path.[37]

Because the D.C. Circuit, pursuant to federal statute or the petitioner's choice of venue, frequently has jurisdiction over challenges to federal environmental rules and other government decisions, the court has developed a substantial body of precedent in this area. In several cases dating back to the mid-1990s, the D.C. Circuit examined what constitutes injury-in-fact in environmental cases and, more specifically, when an increased risk of future harm is sufficient for purposes of establishing Article III standing.[38] In *Florida Audubon Society v. Bentsen*[39] and *Mountain States Legal Foundation v. Glickman*[40]—both involving challenges to federal environmental action and decided within days of one another in 1996—the court held that an increased risk of future harm must be "substantially probable" to constitute an injury-in-fact.[41]

In *Florida Audubon*, the en banc D.C. Circuit considered whether environmental organizations had standing to sue the Secretary of the Treasury and the Commissioner of the

24. *Lujan*, 504 U.S. at 573-74; *see also* Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 667 n.4, 27 ELR 20098 (D.C. Cir. 1996) ("the plaintiff must show that he is not simply injured as is everyone else, lest the injury be too general for court action, and suited instead for political redress") (citing United States v. Richardson, 418 U.S. 166, 176-80 (1974)). For example, when addressing an association's claim that "a delay in enforcing air-pollution standards . . . should establish an injury . . . because '[its] members . . . must breathe,'" the D.C. Circuit remarked that "it is difficult to imagine a grievance more generalized than one shared by all persons who breathe." Louisiana Envtl. Action Network v. Browner, 87 F.3d 1379, 1382, 26 ELR 21561 (D.C. Cir. 1996). In addition, as Prof. Erwin Chemerinsky has noted: "[S]tanding . . . serve[s] judicial efficiency by preventing a flood of lawsuits by those who have only an ideological stake in the outcome." Erwin Chemerinsky, Federal Jurisdiction §2.3 (4th ed. 2003).
25. *Lujan*, 504 U.S. at 561-62.
26. *Id.* at 562 (quoting Allen v. Wright, 468 U.S. 737, 758 (1984)).
27. *Id.*
28. Sierra Club v. EPA, 292 F.3d 895, 901, 32 ELR 20760 (D.C. Cir. 2002) (explaining that this procedure allows for "the most fair and orderly process" by which the petitioner may "invoke the jurisdiction of the court").
29. *Id.* at 900 (quoting Horsehead Resource Dev. Co. v. Browner, 16 F.3d 1246, 1259, 24 ELR 20562 (D.C. Cir. 1994)); *see also Lujan*, 504 U.S. at 560 (quoting Whitmore v. Arkansas, 495 U.S. 149, 155 (1990)) (explaining that the Supreme Court in *Lujan* distinguished among classes of plaintiffs based upon their relationship to the "action (or foregone action) at issue").
30. 358 F.3d 626, 34 ELR 20015 (9th Cir. 2004).
31. *Id.* at 638.
32. *Id.* at 639 n.14.
33. *Id.* at 638-39.
34. 204 F.3d 149, 30 ELR 20369 (4th Cir. 2000).
35. *Id.* at 159.
36. *See* various cases cited *supra* note 24.
37. *See* Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 672, 27 ELR 20098 (D.C. Cir. 1996).
38. *Id.* at 666.
39. 94 F.3d 658, 27 ELR 20098 (D.C. Cir. 1996).
40. 92 F.3d 1228, 26 ELR 21596 (D.C. Cir. 1996).
41. The D.C. Circuit apparently adopted this standard from a Supreme Court opinion in a nonenvironmental case decided a decade earlier. *See* Warth v. Seldin, 422 U.S. 490, 504 (1975).

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Internal Revenue Service.[42] Appellants sued under the National Environmental Policy Act[43] to challenge the Secretary's alleged failure to prepare an environmental impact statement (EIS) for a U.S. Treasury rule authorizing a tax credit for the use of the fuel additive ethyl tertiary butyl ether. The district court held that appellants failed to establish standing. A divided panel of the D.C. Circuit initially reversed. On review en banc, however, the court affirmed the district court's dismissal, finding that "[a]ppellants . . . premise[d] their claims of particularized injury and causation on a lengthy chain of conjecture" insufficient for establishing Article III standing.[44]

First, the court articulated the injury-in-fact standard in terms of increased risk, equating "a particularized injury" to "an increased risk to a personal interest of a plaintiff." Citing "well established . . . precedent," the court said that the plaintiff must show that the challenged action or decision is "*substantially probable* to cause th[e] demonstrated particularized injury."[45] Next, the court explained that cases involving *procedural* EIS claims, as opposed to claims under other statutes alleging violations of substantive rights, did not ease the "particularized" prong of the injury-in-fact requirement. In such cases, plaintiffs must show "demonstrable risk" to their particularized interests arising from the lack of an EIS, as opposed to merely "some general environmental harm."[46] The court also applied "even more exacting scrutiny" of the appellants' claims of injury because their claims involved a "broad [national] rulemaking" affecting areas "throughout the United States," as opposed to localized government action having a "geographic nexus" to the appellants.[47] Finally, the court acknowledged that the "inescapable result" of its rigorous standing analysis was that "at least some disputes [would] not receive judicial review."[48] But the court was not swayed that some plaintiffs "may have . . . difficulty" establishing injury-in-fact under this analysis, since any difficulty stems "not [from] some flaw in the standard," but from deficiencies in their claims.[49]

In *Mountain States*, the D.C. Circuit held that the appellant organizations had established sufficient injury-in-fact to challenge the U.S. Forest Service's decision to curtail logging in the Kootenai National Forest. After evaluating several alternatives presented in an EIS, the Forest Service had chosen an alternative that in the appellants' view, did not authorize enough logging.[50] They argued, in relevant part, that "the timber left in place," i.e., *not* logged, under the chosen alternative "pose[d] an unnecessarily high risk of catastrophic wildfire, endangering . . . people living nearby."[51]

To demonstrate injury-in-fact, the organizations argued that they had "aesthetic and environmental interests" in having the national forest "free of devastating forest fires," and that the Forest Service's chosen alternative could "severely impair[ ]" these interests because it created an increased risk of wildfire compared to other alternatives.[52] They explained that the Forest Service's chosen alternative estimated a 5.4% reduction in the decaying timber that fueled forest fires,[53] whereas their preferred alternative would have resulted in a 14.2% reduction "in the timber," due to the increased logging allowed.[54] Under the organizations' preferred alternative, the timber left in the forest would be reduced by 8.8%, thus decreasing—at least to some degree—the risk of a wildfire. The organizations also submitted declarations from members describing their use of the forest. Nonetheless, the district court rejected the organizations' allegations of increased wildfire risk as mere speculation and dismissed their claims for lack of standing.[55]

On appeal, the D.C. Circuit found that the district court had erred in part on standing, but affirmed the district court in ruling on the merits for the Forest Service.[56] As to standing, the D.C. Circuit disagreed that simply because a wildfire was a "probabilistic event" and the authorized logging (and concomitant fuel reduction) would "merely affect[ ] [the] probabilities" of a wildfire occurring, that risk could not constitute an injury-in-fact.[57] The court observed that "[t]he more drastic the injury the government action makes more likely, the lesser the increment in probability necessary to establish standing."[58] This is because "'even a small probability'" of a drastic harm, such as wildfire, "'is sufficient to . . . take [the] suit out of the category of the hypothetical'" and make it a live case or controversy for purposes of Article III.[59] Adopting the reasoning of the U.S. Court of Appeals for the Seventh Circuit and the U.S. Court of Appeals for the First Circuit in cases involving probabilistic injury (by flood and by fire, respectively), the court concluded that "the potential destruction of fire is so severe that *relatively modest increments in risk* should qualify for standing."[60]

In so holding, the court analyzed the quantitative risks posed by the two alternatives, observing the percentage difference of decaying timber left in the forest under each scenario. The court acknowledged that the difference was "proportionally small," but determined that even the "incremental risk [was] *enough of a threat of injury* to entitle plaintiffs to be heard."[61] Because the organizations had adduced evidence to demonstrate that "*they* would be injured by any wildfire" due to their activities in and around the forest areas subject to the logging decision, the court held that the appellants had satisfied the injury-in-fact requirement as described in *Lujan*.[62]

42. 94 F.3d at 658.
43. 42 U.S.C. §§4321-4370d, ELR Stat. NEPA §§2-209.
44. *Id.* at 666.
45. *Id.* at 665, 666 (emphasis added).
46. *Id.* at 666-67 (stating that the need for a "demonstrable" injury is "necessitated by the well-established rule that a plaintiff must *demonstrate* standing").
47. *Id.* at 667-68.
48. *Id.* at 665.
49. *Id.* at 666.
50. *See* Mountain States Legal Found. v. Glickman, 92 F.3d 1228, 1231, 26 ELR 21596 (D.C. Cir. 1996).
51. *Id.* at 1232.
52. *See id.* at 1234.
53. *Id.* at 1235.
54. *Id.*
55. *Id.* at 1234 (quoting Mountain States Legal Found. v. Glickman, 922 F. Supp. 628, 632, 26 ELR 20685 (D.D.C. 1995)).
56. *See id.* at 1231, 1239.
57. *Id.* at 1234.
58. *Id.*
59. *Id.* at 1235 (quoting Elk Grove v. Evans, 997 F.2d 328, 329, 23 ELR 20989 (7th Cir. 1993)).
60. *Id.* (discussing *Elk Grove*, 997 F.2d at 328, and Dimarzo v. Cahill, 575 F.2d 15, 18 (1st Cir. 1978)) (emphasis added).
61. *Id.*
62. *Id.* (emphasis added).

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Since 1996, the D.C. Circuit has continued to apply the "substantial probability of injury" standard in cases involving allegations of increased risk of future harm from government action or inaction. For example, in *Louisiana Environmental Action Network v. U.S. Environmental Protection Agency*,[63] members of Louisiana Environmental Action Network (LEAN) challenged RCRA regulations that allowed variances from certain treatment standards for hazardous wastes deposited in landfills. Three members of LEAN lived near a landfill at which waste subject to the regulations would be disposed.[64] The court determined that there was a "very 'substantial probability'" that some variances for these local hazardous wastes would be granted which, in turn, would increase the risk of "lower-quality wastes" being disposed of and thus "increase[ ] risk to LEAN members" living near the landfill.[65] On this basis, the court held that petitioners satisfied the injury-in-fact requirement. By contrast, in *Sierra Club*, the court held that Sierra Club did *not* have standing to challenge an EPA rule governing the classification of certain types of sludge as "hazardous waste" under RCRA.[66] The Sierra Club failed to demonstrate that its members "live in a place affected by the Rule" or otherwise were likely to be affected by EPA's regulatory choices, and thus "failed to demonstrate a substantial probability of injury to a single member."[67]

More recently, in the 2005 decision in *Center for Law & Education v. Department of Education*,[68] the D.C. Circuit considered claims it characterized as "direct injury styled as 'increased risk.'"[69] This case involved action by the U.S. Department of Education as part of a rulemaking proceeding and did *not* involve alleged environmental or public health harms, as the court made clear in analyzing the appellants' standing. First, the court observed that "[o]utside of increased exposure to environmental harms, hypothesized 'increased risk' has never been deemed sufficient 'injury'" for standing purposes—thus apparently limiting claims for increased risk to the environmental arena.[70] Second, the court reaffirmed the showing it required by *Florida Audubon*, stating that "even if 'risk' were sufficient injury for standing in the non-environmental context," petitioners would have to show that "the challenged conduct . . . created a '*demonstrably* increased risk' that 'actually threatens the plaintiff's particular interests.'"[71] The court did not attempt to hide its skepticism of claims of increased risk, citing the disconnect between such claims and the "actual or imminent" prong of the injury-in-fact requirement: "[W]ere all purely speculative 'increased risks' deemed injurious, the entire requirement of 'actual or imminent injury' would be rendered moot, because all hypothesized, non-imminent 'injuries' could be dressed up as 'increased risk of future injury.'"[72] The court found that the individual appellant failed to provide an "actual demonstration of increased risk" from the agency action, and the organizational appellants likewise "fail[ed] to bind the challenged conduct to actual injury."[73] The court thus affirmed the district court's dismissal of the claims for lack of standing.

IV. The D.C. Circuit's Line-Drawing in *NRDC I* and Subsequent Retreat

In March 2006, the D.C. Circuit made a significant, albeit temporary, contribution to environmental standing jurisprudence with *NRDC I*. In its opinion, the D.C. Circuit boldly signaled its willingness to scrutinize *and* independently evaluate a plaintiff's claims of increased risk of future harm, and to draw the line at certain probabilistic injuries. The court also distinguished its rigorous standing analysis from the analysis employed by most other federal courts of appeals in cases alleging increased risk of future harm.

A. NRDC I

In *NRDC I*, the NRDC petitioned for review of a final rule issued by EPA implementing exemptions from a ban on the production and consumption of methyl bromide imposed by the Montreal Protocol on Substances That Deplete the Ozone Layer.[74] Methyl bromide is a naturally occurring gas that is manufactured for use as an agricultural pesticide. It is widely used and has no comparable pesticidal substitutes.[75] In 1987, the United States and 24 other nations signed the Montreal Protocol to phase out the production and use of methyl bromide and other ozone-depleting chemicals by specified timetables.[76] Three years later, after the U.S. Senate had ratified the Montreal Protocol, the U.S. Congress amended the Clean Air Act (CAA) to codify the treaty's requirements.[77] And, in 1998, after the signatory nations adjusted the Montreal Protocol's provisions governing methyl bromide,[78] Congress again amended the CAA—this time requiring EPA to promulgate rules to terminate the production, importation, and consumption of methyl bromide by January 1, 2005.[79]

Consistent with the Montreal Protocol, Congress authorized EPA to seek exemptions from the ban for "critical uses" of the pesticide. This critical use exemption was designed to allow agricultural users with no technically or economically feasible alternatives to continue using methyl

63. 172 F.3d 65, 29 ELR 21038 (D.C. Cir. 1999).

64. *Id.* at 67.

65. *Id.* at 68 (quoting Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 666, 27 ELR 20098 (D.C. Cir. 1996)).

66. 292 F.3d at 896, 902.

67. *Id.* at 901-02.

68. 396 F.3d 1152 (D.C. Cir. 2005).

69. *Id.* at 1161.

70. *Id.*

71. *Id.* (quoting Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 27 ELR 20098 (D.C. Cir. 1996)).

72. *See id.*

73. *Id.*

74. Sept. 16, 1987, 26 I.L.M. 1550 (entered into force Jan. 1, 1989).

75. 42 U.S.C. §7671c(h); *NRDC I*, 440 F.3d 476, 477-78, 36 ELR 20051 (D.C. Cir. 2006); U.S. EPA, *Ozone Depletion Rules & Regulations: The Phaseout of Methyl Bromide*, http://www.epa.gov/ozone/mbr (last visited Mar. 1, 2007) [hereinafter *Rules & Regulations*]. EPA classifies methyl bromide as a Class I ozone-depleting substance, meaning that it is in the middle range of substances based on its ozone-depletion potential.

76. *NRDC I*, 440 F.3d at 478. Officially, 189 nations are now signatories. *See also* 53 Fed. Reg. 30566 (Aug. 12, 1988).

77. 42 U.S.C. §7671c.

78. *NRDC I*, 440 F.3d at 478 n.2 (explaining that the Montreal Protocol may be "adjusted" without amendment and ratification).

79. 42 U.S.C. §7671c(h).

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bromide in controlled amounts.[80] In December 2004, EPA published a Final Rule in the *Federal Register* that established the critical uses of methyl bromide for 2005 and the amounts of new production and consumption authorized to satisfy those uses. These amounts were consistent with limits on new production and consumption previously authorized by the Montreal Protocol's signatories in two "decisions"—Decision IX/6 and Decision Ex.I/3.[81]

The NRDC subsequently petitioned for review of the Final Rule, arguing that it authorized more methyl bromide than the minimum necessary to satisfy critical U.S. uses and thus violated the two decisions. Both the NRDC and EPA acknowledged that the decisions were consensus agreements of the signatories, rather than adjustments or amendments to the Montreal Protocol ratified by the Senate and incorporated into U.S. domestic law.[82] The parties disagreed, however, as to the legal status of the two decisions in U.S. federal court. The D.C. Circuit initially did not reach the merits of these claims because it determined that the NRDC lacked standing to challenge the Final Rule.[83] The court held that the NRDC had failed to establish an injury-in-fact from the Final Rule sufficient to satisfy Article III, and accordingly dismissed the petition.[84]

The NRDC had claimed that its members "face a greater chance of contracting skin cancer, cataracts, and other ailments under EPA's Final Rule than under NRDC's interpretation of [the decisions]."[85] This argument was premised on the fact that stratospheric ozone naturally absorbs ultraviolet radiation, so that if the ozone layer is depleted by methyl bromide, less radiation may be absorbed.[86] Humans, in turn, may develop skin cancer or other ailments if exposed to ultraviolet radiation. Thus, the NRDC's theory of causation was that the Final Rule would allow greater-than-necessary emissions of methyl bromide that would deplete the ozone in unnecessarily greater levels, increase NRDC members' exposure to harmful ultraviolet radiation, and thereby increase the members' risk of potentially fatal skin cancer and other serious ailments.[87] In an affidavit from Dr. Sasha Madronich submitted by the NRDC to support its standing, the NRDC asserted that "it is reasonable to expect more than 10 deaths, more than 2,000 non-fatal skin cancer cases, and more than 700 cataract cases [to] result from the . . . new production and consumption allowed by the [Final Rule]."[88]

The D.C. Circuit's reaction to this standing argument is noteworthy for three reasons. First, although EPA had conceded the NRDC's standing,[89] the court sought to establish its jurisdiction by evaluating the different estimates of health risks to the NRDC's members presented by the NRDC and the industry intervenor—the Methyl Bromide Industry Panel of the American Chemistry Council. The NRDC's and Methyl Bromide Industry Panel's experts had produced their respective estimates using the quantitative Atmospheric Health Effects Framework (AHEF) model employed by EPA to estimate health effects from ozone depletion.[90] Moreover, the court conducted its *own* risk calculations to determine, for example, "how often one would expect the death of an NRDC member to occur" as a result of the Final Rule's methyl bromide allowances.[91] Apparently adopting mathematical factors introduced by the Methyl Bromide Industry Panel's expert, the court concluded that "[w]ith ten more cancer deaths in 145 years, the probability of fatality from EPA's rule comes to 1 in *4.2 billion* per person per year," making "the estimated effect on the subset of the U.S. population who are NRDC members (about 490,000) . . . infinitesimal."[92] The court also characterized "other risks"—including a much-greater 1 in 21 million chance of contracting nonfatal skin cancer—as "similarly small."[93]

In reaching these conclusions, the court did not shy away from the sophisticated statistical analyses used by the NRDC and Methyl Bromide Industry Panel experts. Indeed, the court's opinion includes illustrated calculations of its own risk analyses, with explanatory notes to assist the reader in following them. The court explained, for example, that "to determine excess fatalities among current NRDC members, we simply multiply the total U.S. deaths per capita year . . . by the number of NRDC members and their remaining years of exposure (presumed to be 100 to generate an upper bound)."[94] The opinion's tone is surprising because of the court's unabashed, almost upbeat, confidence in the accuracy of its own calculations of risk and its suggestion that the calculations are simple, even obvious, e.g., "we simply create an equality and solve for *x*," "we simply multiply the total U.S. deaths per capita year."[95]

Second, the D.C. Circuit made clear that petitioners who allege increased health risks or other purely probabilistic injuries face particular scrutiny—even an uphill battle—to establish standing. In no uncertain terms, the court distinguished such injuries from those that "fit easily within or without the common definitions of 'actual' or 'imminent'":

> Among those which fit least well are purely probabilistic injuries. Environmental or public health injuries . . . may have complex etiologies that involve the interaction of many discrete risk factors. The chance that one may develop cancer can hardly be said to be an "actual" injury—the harm has not yet come to pass. Nor is it "imminent" in the sense of temporal proximity.[96]

The court also applied and expanded upon its precedent requiring "the injury alleged [to] be 'substantially probable.'"[97] Observing that "probability is a measurement or an estimate of the likelihood of an event occurring," the court acknowledged that it had "never specified exactly what

80. *Id.* §7671c(d)(6); *NRDC I*, 440 F.3d at 479; *see also Rules & Regulations*, *supra* note 75.
81. *NRDC I*, 440 F.3d at 480.
82. *Id.*
83. *Id.*
84. *Id.* at 480, 484.
85. *Id.* at 481.
86. *See id.* at 478.
87. *Id.* at 481 n.6; *see also NRDC II*, 464 F.3d 1, 4, 36 ELR 20181 (D.C. Cir. 2006).
88. *NRDC I*, 440 F.3d at 481 (quoting Aff. of Dr. Sasha Madronich ¶ 8).
89. In its merits brief, EPA stated that it "believes that Petitioner has satisfied the requirements for Article III standing."
90. *See NRDC II*, 464 F.3d at 7.
91. *NRDC I*, 440 F.3d at 482.
92. *Id.* at 481-82 (relying in part on statements by "the intervenor's expert").
93. *Id.* at 482 n.8.
94. *Id.* at 482 n.9.
95. *Id.*
96. *Id.* at 483 (citing Los Angeles v. Lyons, 461 U.S. 95, 105-06 (1983)).
97. *Id.*

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counts as a '*substantial* probability.'"[98] But substantial probability is "*at least*" a "non-trivial chance of injury," as established in *Mountain States*.[99] Applying that standard, the court held that the probability of the alleged health risks to the NRDC's members from EPA's critical use exemptions was "by any measure not of that magnitude."[100]

Importantly, the court indicated that it would scrutinize the probability of an alleged harm occurring and, where possible, would expect the risk of such harm to be quantified. "In some cases it might not be possible to quantify the probability of harm," but "[i]n other cases, the 'risk'—that is, the combination of the probability of a negative event and the impact of it—may affect the assessment."[101] In this case, the court raised concerns about the "methodology and assumptions" used by the NRDC's expert, but determined that even if the NRDC's conclusions were accurate,[102] "the probability of additional deaths and other ailments [due to the Final Rule]" were insufficient to make the alleged injury "anything other than 'speculative' and hypothetical."[103]

Third, the D.C. Circuit distinguished itself from other courts of appeals—including the U.S. Courts of Appeals for the Second Circuit, the Fourth Circuit, and the Ninth Circuit—which "have suggested that an increase in probability *itself* constitutes an 'actual or imminent' injury."[104] The court flatly rejected the notion that "governmental action or inaction [that] increases the likelihood of injury—regardless of the *magnitude* of the increase" constitutes injury-in-fact.[105] After all, even if (in the court's hypothetical argument) the probability of harm to a person doubled from 1 in a 100 billion per person per year to 2 in 100 billion, the person still would have only "a trivial chance of injury."[106] The court aligned itself with the U.S. Court of Appeals for the Eighth Circuit, which it cited as "rejecting 'the proposition that a heightened risk of future harm,'" without more, "'is a cognizable injury.'"[107] The court also reiterated its own position: "[T]he law of this circuit is that an increase in the likelihood of harm may constitute injury in fact only if the increase is sufficient to 'take a suit out of the category of the hypothetical.'"[108]

In sum, by asserting that "'risk' . . . may affect the [injury] assessment"[109] *and* holding that "as a quantitative matter . . . NRDC's alleged injury was trivial,"[110] the court sent an unmistakable message about the stringency of its injury-in-fact analysis when probabilistic environmental or health injuries are alleged.

B. Petition for Rehearing

The NRDC subsequently petitioned for panel or en banc rehearing, arguing that the court had "adopt[ed] a novel and legally indefensible *quantitative* [standing] approach that hinged . . . on the panel's own risk calculations"—which the NRDC claimed had "erroneous[ly] understated the probability of harm."[111] Specifically, the NRDC challenged the court's ruling as a matter of law, asserting that the court's denial of standing to a petitioner "who alleged a scientifically demonstrable increase in the threat of death or serious illness" conflicted with both the court's decision in *Mountain States* and "with the law of at least six sister circuits."[112]

In addition, the NRDC strenuously objected to the court's own calculations, arguing that the court had made "two critical arithmetic errors."[113] First, the NRDC argued that the court erroneously limited its analysis to 10 fatalities from skin cancer, rather than also considering the 2,700 instances of nonfatal illness predicted by the NRDC's expert. Second, the NRDC stated that the court mistakenly assumed from the calculations by intervenor Methyl Bromide Industry Panel that these health risks "were spread over 145 years," and consequently erred in dividing by 145 "to calculate a risk per person per year."[114] Because methyl bromide emissions have a short atmospheric lifetime, meaning "that virtually all of the increased UV exposure caused by those emissions falls on the 293 million Americans alive today," the NRDC argued that the court should have focused on lifetime, instead of annual, risks.[115] In the NRDC's view, "the panel's '1 in 4.2 billion' figure" was significantly understated due to these errors, with "[t]he actual risk of death or serious illness" to persons in the United States "approximately 1 in 100,000."[116] The NRDC estimated that "approximately *five* [of the NRDC's 490,000 members could] expect to suffer death or serious illness . . . due to the 2005 [critical use] exemptions," which it argued was a sufficient increase in risk of future harm to constitute injury-in-fact.[117] Cautioning—even admonishing—the court against "wading into the morass of quantitative risk estimates," the NRDC urged the court to evaluate standing solely on a "qualitative basis."[118]

Although EPA had initially conceded the NRDC's standing, both EPA and the Methyl Bromide Industry Panel opposed the NRDC's petition for rehearing.[119] Each argued that contrary to the NRDC's assertions, the court had ap-

98. *Id.* (emphasis added).

99. *Id.* (emphasis added).

100. *Id.*

101. *Id.*

102. *Id.* at 482.

103. *Id.* at 484.

104. *Id.* at 483 (emphasis added) (citing Baur v. Veneman, 352 F.3d 625, 634 (2d Cir. 2003); Central Delta Water Agency v. United States, 306 F.3d 938, 947-48, 33 ELR 20047 (9th Cir. 2002); Friends of the Earth v. Gaston Copper Recycling Corp., 204 F.3d 149, 160, 30 ELR 20369 (4th Cir. 2000) (en banc); Covington v. Jefferson, 358 F.3d 626, 652, 34 ELR 20015 (9th Cir. 2004) (Gould, J., concurring)).

105. *NRDC I*, 440 F.3d at 483-84 (emphasis added).

106. *Id.* at 484.

107. *Id.* (quoting Shain v. Veneman, 376 F.3d 815, 818, 34 ELR 20057 (8th Cir. 2004)).

108. *Id.* (emphasis added) (quoting Mountain States Legal Found. v. Glickman, 92 F.3d 1228, 1234-35, 26 ELR 21596 (D.C. Cir. 1996)).

109. *Id.* at 483.

110. *NRDC II*, 464 F.3d at 6.

111. NRDC Petition for Rehearing or Rehearing En Banc, No. 04-1438, at 1 (D.C. Cir. Apr. 21, 2006) (emphasis added) [hereinafter NRDC Pet.].

112. *Id.* at 4-5.

113. *Id.* at 8.

114. *Id.* at 9.

115. *Id.*

116. *Id.*

117. *Id.* at 10 (emphasis added).

118. *Id.* at 11.

119. Respondent EPA's Opposition to NRDC's Petition for Rehearing or Rehearing En Banc, No. 04-1438 (D.C. Cir. June 16, 2006) [hereinafter EPA Opp.]; Intervenor's Response to Petition for Rehearing or Rehearing En Banc, No. 04-1438 (D.C. Cir. July 6, 2006) [hereinafter Intervenor Opp.].

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plied the correct legal standard for a case involving "an incremental risk of harm"[120] and had reached a holding that was consistent with *Mountain States* and other D.C. Circuit precedent.[121] As to the mathematical errors alleged by the NRDC, they agreed that the court's quantitative discussion of risk included a minor mathematical error that could be corrected by the panel, rather than by the D.C. Circuit en banc. They disagreed, however, as to the error itself.

For the first time in the proceeding, EPA presented its own risk calculations. The Agency submitted a declaration of an expert, who was employed by the EPA contractor that had developed the AHEF model used by both the NRDC and the Methyl Bromide Industry Panel.[122] EPA acknowledged that the Methyl Bromide Industry Panel's expert had "mistakenly introduce[d] a factor of 145 years into the calculation of risk," which the court had adopted in its analysis, but argued that this was a "technical error" resulting in the risk being understated by a factor of 145, *not* by a factor of "almost 40,000" as the NRDC had argued.[123] The Methyl Bromide Industry Panel, by contrast, argued that the error in the court's calculations amounted to "a small revision of 1.45"—not 40,000 nor even 145.[124]

C. NRDC II

On August 29, 2006, the court granted rehearing by the panel and denied rehearing en banc. The court "withdrew [its] previous opinion," citing "new information" offered by the NRDC and EPA "that led [the panel] to change [its] view of the standing issue."[125] In place of *NRDC I*, the court issued a decision that corrected its original "misperception of the evidence."[126] Seemingly chastened by its mathematical error, the court softened its tone, retreated from its blunt assessment of the NRDC's allegations, and omitted both its treatment of the concept of probability and its mathematical calculations on risk.

The shift in the court's language from *NRDC I* to *NRDC II* shows that the court deliberately dulled its rhetoric. For example, in *NRDC I*, the court observed that "purely probabilistic injuries" involving claims of increased risk are "[a]mong those which fit *least well*" in the "definitions of 'actual' or 'imminent.'"[127] In *NRDC II*, however, the court characterized such claims as merely "not fit[ting] comfortably within the Supreme Court's description of . . . an 'injury in fact.'" In *NRDC I*, the court commented on the Ninth Circuit's acknowledgment of "the potential expansiveness of . . . enhanced risk as injury-in-fact" by wryly noting that "[e]xpansiveness' is an understatement."[128] In *NRDC II*, free of sarcasm, the court cautioned only that "this category of injury may be too expansive."[129] In *NRDC I*, the court *was* the mathematician—"we simply create an equality and solve for *x*"[130]; while in *NRDC II*, the court detachedly stated that "*one may infer*" the number of NRDC members expected to develop cancer due to the 2005 critical use exemption.[131] Gone also are other assertive statements espousing the court's view of standing where increased risk is alleged, such as "[*t*]*he chance* that one may develop cancer *can hardly be said* to be an 'actual' injury,"[132] and that it "cannot be correct" that any action increasing the likelihood of injury constitutes an injury-in-fact, regardless of its magnitude.[133]

Significantly, the court also eliminated any statements on its position vis-à-vis other courts of appeals. In *NRDC I*, the court had distinguished "the law of this circuit" from the position taken by "several other courts of appeals."[134] In *NRDC II*, the court only acknowledged a "conflict among the circuits" on the question of "whether, in NRDC's words, any 'scientifically demonstrable increase in the threat of death or serious illness' . . . is sufficient for standing."[135] Yet the court explicitly declined to address this question, much less to elaborate on its position, on the grounds that the information presented by EPA and the NRDC on rehearing eliminated the need for further inquiry.[136] Furthermore, the court expressly withheld its opinion as to whether "a quantitative approach is appropriate" in a standing analysis—marking an abrupt change from *NRDC I*, when the court applied its *own* quantitative approach in evaluating injury-in-fact.[137] As these and other examples demonstrate, the court eliminated not only the bite of its original standing analysis, but also the bark that had infused the first decision.

On rehearing, in a now-truncated section on standing, the court simply noted that the "lifetime risk" of an individual developing nonfatal skin cancer as a result of EPA's Rule, as estimated by EPA's and the Methyl Bromide Industry Panel's experts, is 1 in 129,000 or 1 in 200,000, respectively.[138] From these risk estimates, the court found that "two to four of NRDC's . . . members will develop cancer as a result of the [Final Rule]," and accordingly held that this probability constituted injury-in-fact sufficient to establish the NRDC's standing.[139] The court then proceeded to the merits of the NRDC's claims. The court held that the two decisions of the Montreal Protocol's signatories were not "law" and, as a result, EPA's Final Rule "[was] not in violation of any domestic law within the meaning of the [CAA]." On this basis, the court denied the NRDC's petition for review.

120. *See* EPA Opp., *supra* note 119, at 1.
121. *Id.* at 7-11, 15; Intervenor Opp., *supra* note 119, at 1-3.
122. *See* EPA Opp., *supra* note 119, at 4.
123. *Id.* at 6 & n.7 (citing NRDC Pet., *supra* note 107, at 10), 15; *see also* EPA Opp. Exh. 1 ¶ 20 (EPA expert explaining that "it is more appropriate to express the risk as a population's . . . lifetime risk," rather than "in annualized terms").
124. Intervenor Opp., *supra* note 119, at 5.
125. *NRDC II*, 464 F.3d 1, 1, 36 ELR 20181 (D.C. Cir. 2006).
126. *Id.* at 7 n.6.
127. *NRDC I*, 440 F.3d 476, 483, 36 ELR 20051 (D.C. Cir. 2006) (emphasis added).
128. *Id.* at 484.
129. 464 F.3d at 6.
130. 440 F.3d at 482 n.9.
131. 464 F.3d at 7 (emphasis added).
132. *NRDC I*, 440 F.3d at 483 (emphasis added).
133. *Id.*
134. *Id.* at 483-84.
135. 464 F.3d at 7 (quoting NRDC Pet., *supra* note 111, at 4).
136. *Id.* at 7.
137. *Id.*
138. *Id.*
139. *Id.* at 7, 11.

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V. Lessons From *NRDC I* in Suits Where Parties Claim Increased Risk of Future Harm

Even though the D.C. Circuit withdrew *NRDC I*, the court's reasoning cannot be ignored, particularly by petitioners claiming probabilistic environmental and health injuries in challenges to federal environmental rules. Likewise, parties defending such suits can utilize the court's reasoning in challenging standing. The implications from *NRDC I* are twofold. First, a mere increase in the risk of future harm alone may not constitute a cognizable injury, even if that harm is death or serious illness. This is particularly true if the petitioner does not have a direct geographic nexus to an area affected by the government action or inaction being challenged. Yet, viewing *NRDC I* in light of *Mountain States*, parties able to demonstrate that a challenged action is "substantially probable" to cause "drastic" or widespread harm that does not "involve the interaction of many discrete risk factors,"[140] such as fire or flood, may presumptively satisfy the injury-in-fact requirement, even if the increased risk of that harm is incremental only. Second, the court may utilize a quantitative approach—as opposed to a strictly qualitative approach—to determine whether the challenged action creates a "demonstrably increased risk" of injury to the party's particularized interests.

Some may argue that *NRDC I* has no enduring message. After all, the opinion was replaced with a toned-down version that broke no new ground and sidestepped the two critical questions answered in *NRDC I*—whether *any* increase in death or serious illness constitutes injury-in-fact, and whether "a quantitative approach is appropriate."[141] But that would be a risky dismissal of a revealing opinion, particularly because it was an error in the court's calculations (or errors, in the NRDC's view)—not a change in its treatment of injury-in-fact—that apparently drove the court to throw out *NRDC I*.

In the cases leading up to *NRDC I*, the D.C. Circuit took a progressively stricter view of claims based on increased risk, as indicated by its remark in 2005 that hypothetical or nonimminent injuries could be "dressed up" as "increased risk of future injury."[142] The unanimous opinion in *NRDC I*, complete with risk calculations and a rejection of the petitioner's alleged threat of harm as "actual or imminent," shows how far the court is willing to go in quantitatively analyzing probabilistic injuries. Not only did the court step up its own analysis, but it distinguished itself (at least until *NRDC II*) as in the minority position among the courts of appeals. The court's conspicuous shift in tone and position in *NRDC II* shows that the court realized it may have gone too far, at least with respect to its mathematical analysis. But this realization was due, no doubt, to the mathematical error in the court's calculations, which factored into its conclusion that the health risks to NRDC members from the Final Rule were infinitesimal.[143] While the court attributed its decision to issue *NRDC II* on new information provided by the NRDC and EPA on rehearing,[144] it is doubtful that the court would have withdrawn the opinion and replaced it with such a vastly different section on standing if it did not feel compelled to scuttle its erroneous calculations of risk and the holding they tainted.

For these reasons, the court's retreat in *NRDC II* should *not* be viewed as evidence that it will view probabilistic environmental or health injuries in only qualitative terms, or otherwise relax its scrutiny of claims of increased risk. Parties having a choice as to venue may opt to avoid the D.C. Circuit and instead bring suit in one of the other courts of appeals—such as the Second Circuit or the Ninth Circuit—which have employed a more plaintiff-friendly injury-in-fact analysis. Parties without the option to forum-shop, such as petitioners required by statute to bring suit in the D.C. Circuit, would be wise to learn from *NRDC I* and tailor their standing evidence accordingly. This is particularly true since the court characterized a person's 1 in 21 million chance of developing nonfatal skin cancer as too "small" to constitute injury-in-fact in *NRDC I*, but held that a 1 in 129,000 chance was sufficient in *NRDC II*. This wide gap in what may constitute injury-in-fact makes it difficult for petitioners to predict where the court will draw the line in future cases, but at least provides data points to consider.

On the other hand, parties defending such suits, including EPA and industry intervenors, may utilize the court's reasoning in *NRDC I* as a blueprint for exposing vulnerabilities in a petitioner's claim to standing. While, as a general rule, there is no question that increases in risk can constitute injury-in-fact sufficient to establish standing,[145] the two questions left open in *NRDC II* leave ample ground for defending parties to contest those claims of increased risk based on the specific facts of the case. In probing whether "any 'scientifically demonstrable' increase in the threat of death or serious illness" constitutes injury-in-fact,[146] defending parties should argue that not every identifiable, but trivial or de minimis, increase in the risk of future harm—even the most extreme harm of death—is sufficient to satisfy Article III standing requirements. An incremental increase in risk of harm alone *cannot* be the standard for injury-in-fact; the probability and/or magnitude of the harm must be a crucial part of the analysis to give effect to the actual or imminent prong of the Supreme Court's injury-in-fact description. If a petitioner could challenge any environmental regulations or government action simply by asserting some increased risk conceivably linked to the regulations or action, no matter how infinitesimal that risk,[147] there would be virtually no limits to such lawsuits.[148] This, in turn, would lead to regulatory gridlock, the unnecessary use of judicial resources and, most fundamentally, a complete disregard of the Article III case-or-controversy requirement. As it stands, the D.C. Circuit's requirements for such suits—that any alleged increase in risk must be nontrivial and any injury substantially probable[149]—do not set a par-

140. 440 F.3d at 483.

141. *NRDC II*, 464 F.3d at 7.

142. Center for Law & Education v. Department of Education, 396 F.3d 1152, 1161 (D.C. Cir. 2005) (quoting Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 667, 27 ELR 20098 (D.C. Cir. 1996)).

143. *NRDC I*, 440 F.3d at 482.

144. 464 F.3d at 3.

145. *Id.* at 6 (citing Mountain States Legal Found. v. Glickman, 92 F.3d 1228, 1234-35, 26 ELR 21596 (D.C. Cir. 1996)).

146. *Id.* (quoting NRDC Pet., *supra* note 107, at 4).

147. *NRDC I*, 440 F.3d at 482.

148. *Cf.* Baur v. Veneman, 352 F.3d 625, 634 (2d Cir. 2003) (acknowledging that "[i]t may . . . be that recognizing enhanced risk as a type of cognizable injury in consumer safety suits would suggest that any citizen could have standing to challenge government safety regulations").

149. *NRDC II*, 464 F.3d at 6.

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ticularly high bar for petitioners. Accordingly, the lesson for parties challenging standing is to adduce rebuttal evidence demonstrating that the claimed increased risk is so marginal and/or indefinite as to be conjecture, left in the "category of the hypothetical."[150]

Perhaps the most interesting question left open by *NRDC II* is whether "a quantitative approach is appropriate" in a standing analysis.[151] The answer certainly must be yes, at least in cases where increased risk of future harm is the asserted injury. In such cases, as *NRDC I* exemplifies, the severity of the injury (or probabilistic event) and the probability of that harm occurring is a central issue. A risk quantification may be the only way to characterize or explain the risk in context. Again, the challenge for parties contesting standing is to force the petitioner into a discussion of context by presenting quantitative evidence of the incremental increase in risk and the probability of the claimed injury actually occurring. This discussion will often carry over into the causation element of Article III standing, as the parties debate not only whether the future injury is "*certainly* impending,"[152] but whether it will materialize from the action being challenged. Furthermore, when the probability of a threatened event occurring is the touchstone of the petitioner's asserted injury, that party cannot shy away from a quantitative assessment of those risks, as the NRDC did when—after introducing quantitative support for its claims—it urged the court on rehearing to evaluate standing solely on a qualitative basis by merely accepting that its members face a greater chance of death and illness from the Final Rule.[153] If a party introduces quantitative evidence of an asserted injury or risk of injury, then objects when the challenging party—or the court—tests the strength of that evidence through a quantitative inquiry, the challenging party should be quick to point out the inconsistency and seek an "apples-to-apples" quantitative examination of the evidence.

VI. Conclusion

The D.C. Circuit had it mostly right in *NRDC I*. In taking a strict view of claims of increased risk of future harm to uphold the Article III case-or-controversy requirement, the court respected its own precedent, employed the right reasoning, and answered the right questions. Where it erred, however, was in using an incorrect mathematical factor in its own risk calculations. After the court found itself entangled in an unusual specter of mathematical error on rehearing, it issued a new decision in which it hastily retreated from the more aggressive position it had staked out, on the basis of those calculations, in *NRDC I*.

This changed outcome does not mean, however, that the court intends to, or should, ease its analysis of probabilistic injuries or avoid quantitative inquiries in the future. To the contrary, *NRDC I* was consistent with the court's increasing scrutiny of alleged future environmental or health injuries. That opinion shows that the court is willing to adopt an even more stringent approach, and it is only a matter of time before the court reestablishes its position in a different case with a cleaner set of facts.

Naturally, not every person or organization alleging an increased risk of future harm will be able to satisfy the D.C. Circuit's standing requirements, nor should they. The D.C. Circuit has explicitly recognized that its analysis will preclude some parties from "getting their foot in the door of the courthouse to pursue their avowed goal of environmental protection."[154] But the court rightly noted that "[t]he worthiness of that goal . . . cannot and should not blind the federal judiciary to the strictures of [its] own constitutional role—the hearing of only actual cases between proper litigants."[155] Moreover, standing has never been an "ingenious academic exercise in the conceivable," but rather requires "a factual showing of perceptible harm."[156] Thus, both for parties trying to get into the courthouse on the basis of increased risk of future harm and for those contesting such claims, *NRDC I* provides important insight into the showing the D.C. Circuit may require. Even though the case is no longer technically on the books, practitioners ignore it at their own peril.

150. *Mountain States*, 92 F.3d at 1234-35 (quoting Elk Grove v. Evans, 997 F.3d 328, 329, 23 ELR 20989 (7th Cir. 1993)).

151. 464 F.3d at 7.

152. *Lujan*, 504 U.S. 555, 564 n.2, 22 ELR 20913 (1992) (quoting Whitmore v. Arkansas, 495 U.S. 149, 158 (1990)) (emphasis added).

153. NRDC Pet., *supra* note 111, at 11.

154. Florida Audubon Soc'y v. Bentsen, 94 F.3d 658, 672, 27 ELR 20098 (D.C. Cir. 1996).

155. *Id.* Because the same standing analysis applies to *all* plaintiffs and petitioners, this observation is not limited to only those having an "avowed goal of environmental protection." Industry petitioners claiming an "increased risk" of a probabilistic injury face the same challenges in demonstrating standing. *Cf.* American Chemistry Council v. Department of Transp., 468 F.3d 810, 36 ELR 20210 (D.C. Cir. 2006) (industry trade associations asserting harm from "increased liability risks" due to regulations did not establish standing).

156. *Lujan*, 504 U.S. at 565 (quoting United States v. Students Challenging Regulatory Agency Procedures, 412 U.S. 669, 688, 3 ELR 20536 (1973)) (observing that this "factual showing" is required at the summary judgment stage).