

**Mercer University School of Law  
Virtual Lecture in Environmental Law**

**IMPLEMENTING A PUBLIC HEALTH APPROACH IN POLLUTION ENFORCEMENT:  
A PATH TO IMPROVING AGENCY DECISIONMAKING AND THE PUBLIC'S  
ACCEPTANCE OF ENVIRONMENTAL LAW**

**BY ROBIN KUNDIS CRAIG\***

*NOTE: This lecture is based on a series of articles, some in print, some in progress. It is also a preview of a longer book project on the public health aspects of environmental law, to be entitled: ENVIRONMENTAL BIOETHICS: THE PUBLIC HEALTH PERSPECTIVE ON ENVIRONMENTAL, NATURAL RESOURCE, AND LAND USE LAW. In keeping with the lecture spirit of this series, however, I have kept footnotes to a minimum and adopted a more conversational tone in the writing.*

Pollution kills. It also debilitates, sickens, and poisons. In other words, pollution is a public health problem – one of the prominent reasons that the federal and state governments regulate pollution pursuant to a wide variety of environmental laws and regulations.

Environmental quality is one of the top ten indicators of personal health, and “[p]oor environmental quality is estimated to be directly responsible for approximately 25 percent of all preventable ill health in the world, with diarrheal diseases and respiratory infections heading the list.”<sup>1</sup> Thus, environmental, natural resources, and land use regulation are public health measures – a fact that public health institutions in the United States readily acknowledge. Indeed, among public health officials, environmental health is becoming the next focus of public health improvement in the United States.

During the origins of federal environmental law, Congress did not ignore this connection between pollution control and public health. Indeed, historically, it was often public health problems that drove and shaped the enactment of pollution regulation. For example, most of the federal pollution control statutes continue to incorporate health-based concerns into their regulatory standards. Perhaps most obviously, the Clean Air Act dictates that the Environmental Protection Agency (EPA) set the primary National Ambient Air Quality Standards (NAAQS) – the overall air quality goals for all regions of the country – at levels that, “allowing an adequate margin of safety, are *requisite to protect the public health*,”<sup>2</sup> while under the Safe Drinking

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\* Attorneys’ Title Insurance Professor of Law, Florida State University College of Law, Tallahassee, Florida. This lecture derives from a series of law review articles and book project.

<sup>1</sup> BARRY L. JOHNSON, ENVIRONMENTAL POLICY AND PUBLIC HEALTH 13 (CRC Press 2007).

<sup>2</sup> 42 U.S.C. § 7409(b)(1) (emphasis added). The Supreme Court recently affirmed that the EPA is to set NAAQS purely on a health basis. *Whitman v. American Trucking Assocs.*, 531 U.S. 457, 466-67 (2001); see also *Lead Indus. Assoc., Inc. v. Env’tl. Protection Agency*, 647 F.2d 1130, 1150-54 (D.C. Cir.), cert. denied, 449 U.S. 1042 (1980) (one of the early important cases establishing the pure health basis of the

Water Act, the EPA sets each maximum contaminant level goal for a pollutant in public drinking water supplies “at the level at which *no known or anticipated adverse effects on the health of persons* occur and which allows an adequate margin of safety,” with the corresponding maximum contaminant level set “as close to the maximum contaminant level goal as is feasible.”<sup>3</sup> A primary purpose of the Toxic Substances Control Act (TSCA) is to ensure that “innovation and commerce in chemical substances and mixtures do not present an *unreasonable risk of injury to health* or the environment.”<sup>4</sup> Congress enacted the Solid Waste Disposal Act, then amended it through the Resource Conservation and Recovery Act (RCRA), in recognition of the fact that “disposal of solid waste and hazardous waste in or on the land without careful planning and management *can present a danger to human health* and the environment.”<sup>5</sup> The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) created the Agency for Toxic Substances and Disease Registry (ATSDR) within the Public Health Service, reporting directly to the Surgeon General, to implement the Act’s health-related provisions, including conducting a health effects study and risk analysis at every contaminated site where cleanup is required.<sup>6</sup> In addition, pursuant to its delegated authority from the President, the EPA must develop, pursuant to CERCLA, methods “for remedying any releases or threats of releases from facilities *which pose substantial danger to the public health* or the environment.”<sup>7</sup> Finally, under the Clean Water Act, states and the EPA must set ambient water quality standards at levels sufficient “to *protect the public health* or welfare,”<sup>8</sup> and the EPA or the implementing state must modify the standard technology-based effluent limitations for discharges into water if those limitations are insufficient to “*assure protection of public health* . . . .”<sup>9</sup>

By explicitly recognizing the relation between environmental and natural resources regulation and the public health, Congress also implicitly recognized the connection between environmental impairment and private injury, such as pathogen-borne illnesses carried by sewage or urban or agricultural runoff, poisoning from acutely toxic pollutants released into the environment, the worsening of conditions such as asthma from regular exposure to certain pollutants, and the long-term destruction of health and even life from chronic environmental exposure to hormone mimickers, poisons, and carcinogens.

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NAAQS). In addition, the EPA must set the primary NAAQS to protect the health of the most sensitive individuals. *Lead Indus.*, 647 F.2d at 1153.

<sup>3</sup> 42 U.S.C. § 300g-1(b)(4)(A), (B). *See also* BARRY L. JOHNSON, ENVIRONMENTAL POLICY AND PUBLIC HEALTH 221-33 (CRC Press 2007) (describing the Safe Drinking Water Act as a public health statute).

<sup>4</sup> 15 U.S.C. § 2601(b) (emphasis added). *See also* BARRY L. JOHNSON, ENVIRONMENTAL POLICY AND PUBLIC HEALTH 272-80 (CRC Press 2007) (describing the Toxic Substance Control Act as a public health statute).

<sup>5</sup> 42 U.S.C. § 6901(b)(2). *See also* BARRY L. JOHNSON, ENVIRONMENTAL POLICY AND PUBLIC HEALTH 286-97 (CRC Press 2007) (describing RCRA as a public health measure).

<sup>6</sup> 42 U.S.C. §§ 9604(i) (creating the ATSDR and assigning it various health-related duties in connection with CERCLA cleanup requirements); 9607(a)(4)(D) (making the statutory potentially responsible parties (PRPs) liable for “the costs of any health assessment or health effects study carried out under section 9604(i)”). *See also* BARRY L. JOHNSON, ENVIRONMENTAL POLICY AND PUBLIC HEALTH 297-311 (CRC Press 2007) (describing CERCLA as a public health measure).

<sup>7</sup> 42 U.S.C. § 9605(a)(3) (emphasis added).

<sup>8</sup> 33 U.S.C. § 1313(c)(2)(A) (emphasis added).

<sup>9</sup> 33 U.S.C. § 1312(a) (emphasis added).

Nevertheless, the practicalities of implementing the pollution control laws have obscured the connections between environmental regulation and public health protection. With few exceptions – notably, the Clean Air Act’s National Ambient Air Quality Standards (NAAQS) and drinking water standards under the Safe Drinking Water Act – implementation of the federal pollution control standards has focused on the setting of technology-based standards, such as the Clean Water Act’s effluent limitations and the Clean Air Act’s emissions standards. This focus on technology and the sometimes excruciatingly technical analyses of what technologies are “available,” “best,” and “economically achievable” deflect attention – the state and federal agencies’, the regulated entities’, and the general public’s – from the potential ramifications of this technology-based regulation on the public health.

Moreover, the relationships among environmental regulation, public health, and private harm are inherently and unavoidably probabilistic. Indeed, the need to talk in terms of probability and risk provides a source of *both* the public policy power *and* the litigation difficulties of a public health perspective on environmental law. As for the rhetorical and political power of such a perspective, regulatory standards that seek to protect entire populations from pollution-related health problems necessarily benefit large numbers of people. However, the benefits generally accrue to epidemiologically calculated statistical persons, so the exact identities of the specific and immediate beneficiaries of that regulation – or the specific and immediate victims when regulatory violations occur – are often equally necessarily shrouded in the metrics of risk. Thus, the very population-focused nature of public health issues often obscures the connections between environmental and natural resource regulation and public health protection, because environmental litigation and enforcement both tend to focus on individuals – individual regulated entities and individual victims of violations.

There is much value to both the public health and to environmental enforcement and compliance to be derived from re-invigorating the concept of environmental regulation as a public health measure. Therefore, this lecture serves as a reminder that pollution-control statutes create regulatory regimes designed in prominent part *to ensure the protection of the public health*.

Specifically, this lecture argues that revitalizing the public health perspective on environmental law could both improve environmental decisionmaking in several areas and increase public acceptance of more stringent environmental regulation that might otherwise be considered “draconian.” To advance that argument, it will supply a public health perspective for two pollution-control issues: (1) the public perception of the government’s over-enforcement of environmental statutes; and (2) standing in environmental citizen suits intended to enforce the federal environmental laws.

### **THE DISSOCIATION OF PUBLIC HEALTH CONSIDERATIONS FROM ENVIRONMENTAL ENFORCEMENT IN GENERAL**

Environmental enforcement has often elided the relationship between compliance with the environmental statutes and the public health, dissociating the relationships among

environmental degradation, regulatory standards, and increased risk of disease or other bodily impairment. At times, this dissociation can reflect an overtly political agenda. For example, as recently as February 2007, “members of the Senate Environment and Public Works Committee accused Environmental Protection Agency Administrator Stephen Johnson of putting political considerations ahead of public health in revising regulations to limit air pollution.”<sup>10</sup>

However, even at its most innocent, this dissociation has significant potential consequences for the general public’s continued valuation of, and hence support for, environmental regulation. At an extreme, this dissociation renders environmental law inherently altruistic: humans are protecting “the environment” for its own sake, not for human benefit and certainly not for personal well-being. However, even in the more subtle middle, this dissociation of human health from environmental concerns has social and legal consequences, potentially devaluing environmental enforcement. Two aspects of environmental enforcement could benefit immediately from a revitalized public health perspective: (1) the EPA’s pollution enforcement decisionmaking protocols; and (2) the injury-in-fact analysis for standing purposes in environmental citizen suits.

#### **AGENCY ENFORCEMENT OF THE POLLUTION CONTROL STATUTES AND THE PUBLIC HEALTH**

Public health considerations have always played a role in the EPA’s enforcement of the pollution control statutes. For example, the EPA and U.S. Department of Justice are more likely to seek criminal sanctions when an environmental violation directly threatens public health.

Nevertheless, the public health calculus has not been a prominent component of enforcement decisionmaking or evaluation more generally. As one example, only in 2005 did the EPA create a national research program focused solely on human health research, and only in 2005 did it begin calculating the human health benefits of its enforcement actions.

Nevertheless, a public health perspective on environmental enforcement could help the federal agencies to avoid the public perception of over-enforcement. Should anyone be skeptical that such a perception exists, Justice Scalia’s plurality opinion in *Rapanos v. United States*, the Supreme Court’s 2006 decision on Clean Water Act jurisdiction, should lay all doubts to rest:

The enforcement proceedings against Mr. Rapanos are a small part of the immense expansion of federal regulation of land use that has occurred under the Clean Water Act – without any change in the governing statute – during the past five Presidential administrations. In the last three decades, the Corps and the Environmental Protection Agency (EPA) have interpreted their jurisdiction over “the waters of the United States” to cover 270-to-300 million acres of swampy lands in the United States-including half of Alaska and an area the size of California in the lower 48 States. And that was just the beginning. The Corps has

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<sup>10</sup> Steven D. Cook, “Senators Accuse EPA of Putting Politics Ahead of Public Health When Revising Rules,” *BNA Daily Environment Report*, No. 25, at A-10 (Feb. 7, 2007), available at <http://pubs.bna.com/ip/bna/DEN.NSF/eh/a0b4a5f0n0>.

also asserted jurisdiction over virtually any parcel of land containing a channel or conduit—whether man-made or natural, broad or narrow, permanent or ephemeral—through which rainwater or drainage may occasionally or intermittently flow. On this view, the federally regulated “waters of the United States” include storm drains, roadside ditches, ripples of sand in the desert that may contain water once a year, and lands that are covered by floodwaters once every 100 years. Because they include the land containing storm sewers and desert washes, the statutory “waters of the United States” engulf entire cities and immense arid wastelands. In fact, the entire land area of the United States lies in some drainage basin, and an endless network of visible channels furrows the entire surface, containing water ephemerally wherever the rain falls. Any plot of land containing such a channel may potentially be regulated as a “water of the United States.”<sup>11</sup>

Even the EPA pursues a targeted enforcement policy that incorporates a notion of “over-enforcement” as well as responding to the reality of limited enforcement resources.

Such over-enforcement accusations implicitly assume that pollution regulation has some built-in margin of safety that renders absolute compliance unnecessary and, at the extreme, even inefficient and wasteful. Under this view of pollution regulation, environmental enforcement actions become analogous to speeding tickets: we do not expect or desire police officers to waste their time citing every minor violation of a speed limit unless injury actually occurs or special circumstances (presence of children, drunkenness) render that minor violation unusually risk-producing. However, a public health perspective on pollution regulation calls this whole analogy into question, revealing strict environmental enforcement to be an always already insufficient prerequisite to meeting the statutes’ public health protection goals.

Part of the over-enforcement perception derives from the fact that, in the civil context at least, the liability under most federal environmental and natural resources statutes is strict. Any violation of the statute – discharging or emitting pollutants without a permit, exceeding the permit limitations, or failure to monitor and report – warrants an enforcement action by the state or federal government. The Acts’ strict liability regimes are intended to ensure compliance with their regulatory requirements and the eventual attainment of the Act’s overall regulatory goals. Specifically, by creating a strict liability regime and eliminating damages as an element of enforcement, Congress remedied the collective action and proof-of-causation problems that plagued environmental litigation under the common law of torts.<sup>12</sup> Instead, the statutes remove causation and injury from the individual to the collective: collectively, polluters have created levels of air pollution and water pollution in many locations that are unhealthy and otherwise undesirable from a public interest perspective. Moreover, graduating the enforcement mechanisms available according to intent and the actual harm created or risked allows enforcing agents to tailor enforcement against individual contributors to the collective action problem in light of their individual contribution.

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<sup>11</sup> *Rapanos v. United States*, 547 U.S. 715, 722 (2006).

<sup>12</sup> See DANIEL H. COLE, *POLLUTION & PROPERTY* 29-39 (2002) (discussing public regulation of air and water).

However, the strict liability structure obscures the relationship between environmental regulation and prevention of public injuries, such as impairment of the public health, by essentially rendering all violations of the statutes equally “bad.” Moreover, this strict liability regime also allows the conceptual disconnection of statutory violations from any actual injury – to the environment, to public health, or to individuals – and hence the conceptual creation of the “no injury” environmental violation.

This disconnection of statutory violation from actual harm has enforcement consequences. For example, in the case of *Weinberger v. Romero-Barcelo*,<sup>13</sup> citizens of Puerto Rico sued to enjoin the U.S. Navy’s weapons training operations on Vieques Island, arguing that the Navy was violating the Clean Water Act by discharging ordnance into coastal waters without a permit. The district court agreed that a violation of the Clean Water Act was occurring; however, it refused to enjoin the Navy’s operations, finding that the weapons training – *i.e.*, bombing of the ocean – caused no environmental harm. The U.S. Supreme Court agreed with the district court, emphasizing that “[t]he integrity of the Nation’s waters, . . . not the permit process, is the purpose of the” Clean Water Act,<sup>14</sup> and in this case “the discharge of ordnance had not polluted the waters,” justifying the district court’s decision to decline an injunction when “it neither ignored the statutory violation nor undercut the purpose and function of the permit system.”<sup>15</sup>

As *Weinberger* demonstrates, if the enforcing agent – the regulatory agency, citizen enforcer, or court – does not contextualize an individual enforcement proceeding within this collective action problem, the strict liability/no damages enforcement regime can easily undermine the Acts’ often long-term, preventive and precautionary goals. The result is the “no (immediate) harm, no foul” enforcement approach that characterizes *Weinberger* – an enforcement mentality that is particularly counterproductive when the standards violated were intended to help safeguard the public health.

In addition to a strict liability scheme, the highly technical and potentially controversial nature of the day-to-day implementation of the pollution control statutes – the scientific basis for the ambient air and water quality standards, the accuracy of the EPA’s assessment of pollution control technologies when establishing technology-based emissions standards and effluent limitations, the allegedly prohibitive costs of compliance and debatability of accompanying cost-benefit analyses – also tends to displace attention from the larger public purposes of these statutes and their ultimate goals. Nevertheless, when environmental law implements technology-based standards, these standards generally contain built-in concessions to technological and economic limitations. Thus, much regulatory standard-setting is always already insufficient to protect the public health.

To be more specific: Individual contributions to the collective pollution problem and to the (potential) resulting public injury are addressed through the regulatory standards chosen – for example, emissions standards under the Clean Air Act or effluent limitations under the Clean

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<sup>13</sup> 456 U.S. 305 (1982).

<sup>14</sup> *Id.* at 314.

<sup>15</sup> *Id.* at 315.

Water Act, both summarized in an individual permit. In a perfect world, these regulatory requirements would directly implement the Acts' more general health-based goals – under the Clean Air Act, nationwide attainment of the health-based NAAQS, and under the Clean Water Act, nationwide attainment of waters that are fishable and swimmable and, where water quality standards require, of waters that are suitable for drinking water. Under this direct standard-to-goal model, if the agency sets the standard correctly (*i.e.*, at a level scientifically shown to achieve the public health goal), universal compliance with the individual regulatory standards (adjusted over time to reflect both scientifically refined assessments of public health needs and technological developments in pollution control) would ensure that the pollution control regime would attain its collective public health goals. Moreover, under this model of environmental regulation, individual causation remains irrelevant to enforcement actions, because any violation of the regulatory standards is by definition an impediment to the attainment of – and hence a perpetuation of the injury to – the public health. Thus, even under this perfect model, universal compliance – and hence universal enforcement – would thus be appropriate.

However, the EPA can and has implemented this “direct standard-to-goal” model only rarely. Instead, the regulatory standards that actually govern individual polluters only rarely can directly achieve the relevant statute's public health goals, even assuming perfect compliance. Congress usually builds (often through amendments) concessions to “reality” – the technological limitations on pollution control, the economic dislocations that would occur from immediate and widespread shutdowns – into the implementing agency's authority to set regulatory standards for individual polluters. The usual and intended result of these concessions is to mitigate the otherwise draconian measures that would be necessary to achieve nationally the health-based ambient air and water quality standards – such as, for example, immediate elimination of all smog in Los Angeles and all pollution into the Mississippi River. As a result, even perfect compliance with the regulatory standards is probably inadequate to protect the public health.

If regulators and federal courts were to implement a public health perspective in environmental enforcement, they would recognize and clearly articulate that, with respect to public-health-related regulatory requirements, there is no such thing as over-enforcement, because all enforcement actions against violations of those requirements decrease the risk to the public health. Viewed from a public health perspective, on-the-ground implementation of the environmental strict liability statutes is always a compromise, and it is always the public health interest, not the collective interests of the polluters, that has been compromised. If we take the health-based goals of the federal pollution control statutes seriously, and if we acknowledge that technological and economic limitations have already delayed achievement of those health-based goals, *then there is no such thing as over-enforcement of the statutes*. Moreover, every violation of a health-related standard constitutes a public harm, not just in the “obey the law” sense but also because each violation both constitutes a continuing impairment to the public health and increases the risk of disease or other health problems to individuals by contributing to a lack of achievement (or, in the regulatory end game, threat to the continued maintenance) of the statutes' health-based goals for ambient environmental quality.

When courts acknowledge that violations of pollution control statutes put the public health at risk, they are far more likely to enjoin such violations, both preliminarily and

permanently. For example, the *Weinberger* Court noted that court orders requiring immediate cessation of discharges *would* be appropriate when illegal discharges presented “an imminent and substantial endangerment to the health of persons . . . .”<sup>16</sup> Moreover, acknowledged public health affects can influence the jurisprudential balancing of harms in the injunction analysis both by rendering increased risk legally cognizable and by recognizing that injury to the public health is by definition injury to many individual members of the public. For example, the *Middlesex County Sewerage Authority* Court emphasized that the Clean Water Act “provides no incentives to suit *other than to protect the health and welfare of those suing and others similarly situated.*”<sup>17</sup>

Thus, adopting a public health perspective regarding the enforcement of the federal pollution control statutes would accomplish two salutary ends for both environmental protection and the overall public health. First, the public health perspective would help to eliminate the public perception of over-enforcement. Second, the public health perspective would also likely strengthen enforcement efforts, both the agencies’ and citizens’.

### **PUBLIC HEALTH, ENVIRONMENTAL CITIZEN SUITS, AND THE STANDING DOCTRINE**

Most of the federal environmental statutes, particularly the pollution control statutes, contain citizen suit provisions. These provisions generally allow private litigants to sue private defendants for alleged violations of the relevant Act, and/or to sue the implementing agency for failure to perform nondiscretionary duties. Thus, as written, citizen suit provisions allow for the legal cognizability of the probabilistic relationship between regulation to promote the public health and private injury. Specifically, by eliminating proof of individual causation and damages from the citizen suit cause of action, Congress effectively allowed citizens to sue to enjoin regulatory violations that put their health at risk, even if no individual plaintiff yet manifested signs or symptoms of disease or other health impairment.

Nevertheless, this attempt by Congress to abrogate the public/private divide in pollution enforcement soon encountered a federal court obstacle: standing. By insisting on individual injury-in-fact, standing jurisprudence has done much to dissociate, conceptually, the relationships among violations of regulatory standards, environmental degradation, the public health, and private harm. For example, in *Sierra Club v. Morton*,<sup>18</sup> by a narrow and strongly contested 4-3 majority (Justices Powell and Rehnquist played no part in the decision), the Supreme Court determined that the Sierra Club had not adequately demonstrated standing because the acknowledged potential public injury from allegedly illegal environmental degradation was not enough to give the federal courts jurisdiction; instead, demonstrable private injury was required. “[T]he ‘injury-in-fact’ test requires more than an injury to a cognizable interest. It requires that the party seeking review be himself among the injured.”<sup>19</sup> By focusing purely on public harm, therefore, the Sierra Club had failed to allege the requisite private injury-

<sup>16</sup> *Weinberger*, 456 U.S. 305, 317 (1982) (quoting CWA § 504(a), 33 U.S.C. § 1364(a) (1976 ed., Supp. IV)).

<sup>17</sup> *Id.* at 17 n. 27 (quoting a statement by Senator Hart, 116 Cong. Rec. 33104 (1970)) (emphasis added).

<sup>18</sup> 405 U.S. 727 (1972).

<sup>19</sup> *Id.* at 734-35.

in-fact. This 4-3 vote eliminated any automatic correlation between private injury and either public values or environmental violations in the standing context.

However, a public health perspective *requires* acknowledgment of a probabilistic, risk-based relationship between public concerns – the population-based focus of public health measures – and private injury. Injury to the public health is by definition an increase in disease and other detrimental effects in individual human beings. Activities that put the public health at risk also, by definition, put individuals at risk. However, when Congress and agencies promulgate public health-related pollution control requirements, the individuals who will actually suffer as a result of specific regulatory violations often can be “identified” *ex ante* only through population statistics and *ex post* only after a many-year latency period. Therefore, connecting interference with the public health to legally cognizable individual injuries often requires jurisprudence to accommodate increased risk and a longer-term perspective on the dangers of environmental pollution.

The dissociation of statutory violations, environmental degradation, public injury, and private harm became complete in the Supreme Court’s 2001 decision in *Laidlaw*,<sup>20</sup> which involved Laidlaw Environmental Services’ operation of a wastewater treatment plant associated with a hazardous waste incinerator facility in South Carolina. Laidlaw’s Clean Water Act permit set a limit of 1.3 parts per billion (ppb) on Laidlaw’s discharges of mercury into the North Tyger River, but Laidlaw consistently violated that permit requirement – indeed, the district court found that 489 violations of this permit limit had occurred between 1987 and 1995, an average of over 54 violations per year, or, on average, an illegal discharge of mercury more than once a week. The Court acknowledged that mercury is “an extremely toxic pollutant,”<sup>21</sup> which should have suggested that Laidlaw’s illegal discharges were putting environmental integrity at risk *and* threatening the public health, increasing risks of personal injury – mercury poisoning – in the process. Nevertheless, the district court had explicitly found that “the NPDES permit violations at issue in this citizen suit did not result in any health risk or environmental harm,”<sup>22</sup> a finding that neither the Fourth Circuit nor the Supreme Court disturbed. This judicially determined lack of environmental injury and health risk did not matter, however. Instead, what mattered for standing purposes were the plaintiffs’ fearful self-curtailments of their recreational use of the river.

Although the *Laidlaw* decision has been widely hailed as a victory for environmentalists, from a public health perspective its injury-in-fact analysis is absurd. First, by allowing “reasonable fear” of pollution to form the basis of aesthetic and recreational injuries *without* disturbing the district court’s finding of no injury to the public health, the Supreme Court both acknowledged and subjectivized the increased risks to public health from toxic pollution. The Court at least implicitly acknowledged these threats by deeming the plaintiffs’ fears reasonable, because the reasonableness of the plaintiffs’ fear ultimately depended upon the fact that contact with mercury-contaminated water and consumption of mercury-contaminated fish elevate risks to human health. However, the Court subjectivized these risks by elevating the *plaintiffs’* “fear

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<sup>20</sup> 528 U.S. 167 (2001).

<sup>21</sup> *Id.* at 176.

<sup>22</sup> *Id.* at 181 (quoting *Laidlaw Trial Court*, 956 F. Supp. at 602).

of risk” to legally cognizable injury status.<sup>23</sup> To put it another way, the Court effectively privileged the plaintiffs’ subjective assessments of the risks from mercury pollution over the regulatory agencies’ objective assessment of the same risk – the assessment embodied and addressed in the 1.3 ppb permit limitation that Laidlaw was repeatedly violating.

Second, as *Laidlaw* was being litigated through the federal courts, research increasingly indicated that, because bioaccumulation allows fish and wildlife to become more toxic than the water that surrounds them, even these stringent effluent limitations were insufficient to protect the public health. Given mercury’s toxic effects, mercury discharge limitations have always been relatively stringent, as Laidlaw’s 1.3 ppb permit limit, based on the 1986 EPA water quality criteria, suggests. However, in 1997 – as the district court was deciding *Laidlaw* – the EPA was compiling its *Mercury Study Report to Congress*.<sup>24</sup> In summarizing its public health-related findings, the EPA noted that “an analysis of dietary surveys led the U.S. EPA to conclude that between 1 and 3 percent of women of child-bearing age (i.e., between the ages of 15 and 44) eat sufficient amounts of fish to be at risk from methylmercury exposure, depending on the methylmercury concentrations in the fish.”<sup>25</sup> Moreover, the EPA’s report strongly indicated that the FDA’s 1.0 ppm action level – the level upon which the *Laidlaw* district court relied and characterized as almost ridiculously protective of human health – was perhaps five times too *lenient* to protect the health of fetuses and small children. If the district court had applied this newly suggested fish tissue concentration action level of 0.20 ppm, the public health effects of Laidlaw’s discharges would have been literally undetectable by the DHEC, which relied on “detection equipment measuring mercury bioaccumulation at .25 ppm and higher . . . .”<sup>26</sup>

In 2000, as the U.S. Supreme Court was issuing its opinion in *Laidlaw*, the National Academy of Sciences confirmed the EPA’s recommendations, noting that “individuals with high [methylmercury] exposures from frequent fish consumption might have little or no margin of safety (i.e., exposures of high-end consumers are close to those with observable adverse effects). The population at highest risk is the children of women who consumed large amounts of fish and

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<sup>23</sup> John C. Manning, *Going Back to SCRAP in Order to Refine Steel: The Supreme Court Loosens the Modern Constraints of the Doctrine of Standing in Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc.*, 10 WIDENER J. PUBLIC L. 215, 238 (2001) (“The holding of *Laidlaw* makes clear that in order to satisfy the injury in fact requirement, such an injury need not be scientifically measurable and objectively perceivable, but may be only a subjective injury in order to survive summary judgment.”). See also Mary D. Fan, *Risk Magnified: Standing under the Statist Lens*, 112 YALE L.J. 1633, 1633 (April 2003) (criticizing the subjectivization of injury and arguing that “[s]o long as another, objective explanation remains, it should be superimposed, not to conceal and legitimate potentially problematic practices, but to substitute as an alternative rationality and a neutral and transparent principal [*sic*] for future decisions.”).

<sup>24</sup> OFFICE OF AIR QUALITY PLANNING & STANDARDS AND OFFICE OF RESEARCH & DEVELOPMENT, U.S. EPA, *MERCURY STUDY REPORT TO CONGRESS* (EPA-452/R-97-003) (Dec. 1997), available at <http://www.epa.gov/mercury/report.htm> [hereinafter U.S. EPA, *MERCURY STUDY REPORT*]. The district court issued its opinion in *Laidlaw* on January 22, 1997, almost 11 months before the EPA issued its report, see *Laidlaw Trial Court*, 956 F. Supp. at 588, but the report reflected research compiled starting immediately after the 1990 amendments to the Clean Air Act. U.S. EPA, *MERCURY STUDY REPORT, VOLUME I: EXECUTIVE SUMMARY O-1* (Dec. 1997).

<sup>25</sup> U.S. EPA, *MERCURY STUDY REPORT, VOLUME I: EXECUTIVE SUMMARY O-3* (Dec. 1997).

<sup>26</sup> *Laidlaw District Court*, 956 F. Supp. at 603. Another study presented to the district court, however, found no fish in the North Tyger River “with mercury bioaccumulation greater than 0.14 ppm,” suggesting that in fact there had been no *short-term* impacts in the waters *immediately downstream* of Laidlaw’s discharges.

seafood during pregnancy. The committee concludes that the risk to that population is likely to be sufficient to result in an increase in the number of children who have to struggle to keep up in school and who might require remedial classes or special education”<sup>27</sup> – specifically, “[t]he committee estimates that over 60,000 children are born each year at risk for adverse neurodevelopmental effects due to in utero exposure to [methylmercury].”<sup>28</sup>

Thus, the *Laidlaw* courts could have been made aware that emerging evidence was indicating that Laidlaw’s 1.3 ppb discharge limitation was not – at least from a public health perspective – so “draconian” as it appeared to the district court. Moreover, if the district court and Supreme Court had looked beyond the immediate effects of Laidlaw’s discharges on the North Tyger River, both geographically and temporally, public health risks might have been more obvious. In 2001, one year after the *Laidlaw* decision, South Carolina considered human health to be protected at ambient water quality levels of 0.15 micrograms of mercury per liter of water<sup>29</sup> – an ambient water quality requirement ten times more stringent than Laidlaw’s discharge limitation. Moreover, freshwater fishing occurs in the North Tyger River, as the plaintiffs’ affidavits in *Laidlaw* also indicated. While no fish consumption advisories have been issued for the North Tyger River itself, that river flows southeast into South Carolina’s larger rivers, most of which *do* have fish consumption advisories based on methylmercury contamination of the fish. Moreover, data from 1999 to 2002 indicates that “[w]omen residing in coastal areas had blood mercury concentrations that were 40 percent higher on average than those of women in noncoastal areas” and that “[b]lood mercury concentrations for women living on the Atlantic coastal area were greater than those for women living in the Pacific coastal area, which, in turn, were greater than those for women living in the region of the Gulf of Mexico.”<sup>30</sup> These data suggest that, at the time of the Supreme Court’s 2001 decision in *Laidlaw*, women living and fetuses developing downstream from Laidlaw’s mercury discharges in Atlantic coastal South Carolina were already at higher risk of mercury poisoning than other populations nationally and that, outside of the immediate downstream vicinity of Laidlaw’s discharges, the excess mercury could well have been contributing to ongoing public health problems.

Thus, outside of the immediately downstream vicinity of Laidlaw’s discharges, the excess mercury could well have been contributing to ongoing and recognized public health problems. The real public health implications of Laidlaw’s illegal mercury discharges could thus have provided the Supreme Court with a much better rationale for finding that standing existed than the plaintiffs’ “reasonable fears” from the discharges. At the same time, had the Supreme Court articulated the real public health threat created by excess mercury discharges, it might well have promoted public demand for even more “draconian” regulation of mercury discharges.

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<sup>27</sup> COMMISSION ON LIFE SCIENCES, NATIONAL ACADEMY OF SCIENCES, TOXICOLOGICAL EFFECTS OF METHYLMERCURY 9 (2000).

<sup>28</sup> *Id.* at 327.

<sup>29</sup> SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL, WATERSHED WATER QUALITY ASSESSMENT: BROAD RIVER BASIN 14, tbl. 1 (June 2001).

<sup>30</sup> Kathryn R. Mahaffrey, *NHANES 1999-2002 Update on Mercury*, in U.S. EPA, PROCEEDINGS OF THE 2005 NATIONAL FORUM ON CONTAMINANTS IN FISH (EPA 823-R-05-006), at II-51 (Nov. 17, 2005).

Even more recent evidence indicates that, because bioaccumulation is an ongoing process, continuation of Laidlaw's discharges (viewed from the district court's perspective, before the plant shut down), might well have posed a long-term health risk even for the North Tyger River. Shortly after the Supreme Court's *Laidlaw* decision, the EPA set a new water quality criterion for mercury to protect human health from the bioaccumulation of methylmercury in fish tissue, replacing the prior criterion on which the DHEC based Laidlaw's discharge limit. To better reflect the actual public health threat from mercury pollution of waters, the new criterion is a fish tissue criterion rather than a water column criterion, deeming a health-based water quality standard violation to occur when fish flesh contains 0.3 milligrams or more of methylmercury per kilogram of fish, or 0.30 ppm—the most recent ratcheting down from the FDA's action level of 1.0 ppm. In August 2006, the EPA reported that “[a]pproximately 40 percent of the watershed-averaged fish tissue concentrations exceeded” this standard.<sup>13</sup> Clearly, therefore, mercury pollution remains a public health problem.

From a regulatory perspective, the new fish tissue criterion tells an NPDES permit writer little about what the individual discharger's actual discharge limitation should be. Nevertheless, as the EPA and states have begun to work on mercury total maximum daily loads (TMDLs), it is becoming clear that, even if Laidlaw *had* been complying with its 1.3 ppb permit limit, it still would have been contributing to a public health risk. The permit limitation of 1.3 ppb translates to 1.3 micrograms of mercury per liter of water, where a microgram is one one-millionth of a gram. However, to keep fish tissue concentrations of mercury below the new recommended fish tissue criterion, the EPA has been assigning TMDL permit limitations at levels of *nanograms* per liter—that is, in parts per *trillion*, a discharge limitation 1000 times (three orders of magnitude) more stringent than Laidlaw's NPDES permit allowed. Moreover, the EPA now recognizes “that mercury is an environmentally persistent bioaccumulative toxic with detrimental effects to human fetuses even at minute quantities, and as such, should be *eliminated* from discharges to the extent practicable.”<sup>23</sup>

*Laidlaw*'s facts thus graphically illustrate that, from a public health perspective, many technology-based permit limitations are insufficient to achieve the Clean Water Act's larger health-based goals, even assuming perfect compliance. Moreover, the *Laidlaw* facts suggest that effectuating the public health goals of pollution regulation often requires *more than* strict enforcement—it requires both strict enforcement of the initial technology-based pollution limitations *and* continual adjustments to those standards in light of evolving science and improving technology. Indeed, Congress itself recognized that later refinements of the technology-based effluent limitations and emissions standards would be necessary when it included the water-quality-based effluent limitation provisions in the Clean Water Act and the mandatory health-based adjustments to the emissions standards for hazardous air pollutants in the Clean Air Act.

Therefore, viewed from a public health perspective (and, admittedly, with the benefit of post-litigation scientific and regulatory developments), Laidlaw's “draconian” permit limitations for mercury were always already too lenient to fully protect the public health. In addition,

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<sup>31</sup> U.S. ENVTL. PROT. AGENCY, DRAFT GUIDANCE FOR IMPLEMENTING THE JANUARY 2001 METHYLMERCURY WATER QUALITY CRITERION 5 (2006) *available at*

<sup>32</sup> <http://www.epa.gov/waterscience/criteria/methylmercury/guidance-draft-frontmatter.pdf>.  
*Id.* at 25 (emphasis added).

mercury discharge concentrations in the range necessary to protect the public health from fish tissue bioaccumulation (micrograms per liter in *Laidlaw*, nanograms per liter more recently) are at the limit of contemporary detection capabilities, so expectations of immediate *measurable* environmental harm from mercury violations are unreasonable, especially in light of the temporal component of the most significant exposure pathway: methylmercury bioaccumulation in fish tissue. The indirect human exposure pathway and the long-term bioaccumulative effects of mercury pollution make demands for tort-like actual private injury-in-fact similarly unreasonable.

If citizen enforcement is to contribute both to the Clean Water Act's precautionary prevention of widespread public health impairment and to the articulation and reinforcement of the public health values of pollution regulation, then federal courts must adopt an increased risk standing analysis that acknowledges the limits that often inhere in the technology-based requirements imposed on individual polluters, the probabilistic nature of public health protections, and the broad geographic and temporal public health risks from pollution violations. Moreover, both litigants and federal judges must educate themselves regarding, and then clearly articulate, the public health values that many environmental regulatory standards protect and the risks to public health that arise when polluters violate those standards.

## CONCLUSION

Because the federal pollution control laws are designed, at least in part, to protect the public health, enforcement of those laws, whether by federal agencies, state agencies, or citizens, also contributes to protection of the public health. However, the public health aspects of environmental enforcement can become obscured by the practical day-to-day issues that arise in implementing those statutes and the legal hurdles to bringing suit – the setting of technology-based emissions standards and effluent limitations that take account of both economic practicability and technological availability, enforcement actions against violations that appear to cause no harm, the need to prove individual injury for standing purposes when environmental violations most directly increase the risk of future health impairments.

At its most basic, therefore, a public health perspective on the pollution control statutes and their enforcement requires courts and agencies to do two things. First, courts and agencies must acknowledge that technology-based regulatory standards are by their very nature limited in their ability to protect the public health. Second, and more importantly, courts and agencies must recognize that translating “protection of the public health” into individual enforcement actions is always an exercise in the reduction of risk. As such, the increased risk to the public health that arises from pollution violations needs to be recognized as a *de facto* injury, both to the public good and to the individuals put at risk as a result of the illegal pollution.

Governmental and citizen enforcement actions, and judicial descriptions of and responses to those enforcement actions, both embody and, more importantly, *formulate* social judgments about the harms that matter. As a result, those formulations can help to balance the popular cost-benefit analysis of environmental regulation by articulating the public values at stake in environmental law, including the public health. As relatively obvious and immediate environmental health problems like cholera, typhoid, lead poisoning, and smog give way to

invidious, emerging, and risk-based problems such as hormone mimickers, impairment of fetal development, contamination of the food chain, and long-term cancer and other disease risks, an enforcement and standing jurisprudence that continues to privilege actual injury and to denigrate increased risk proclaims a normative conception of harm that undermines continued popular valuation of pollution control regulation.

The Supreme Court and the federal courts, environmental regulators, and the general public need to conceptually reconnect violations of the federal pollution control requirements to endangerment of the public health and hence to private injury. Such conceptual reconnection is necessary to ensure that: (1) the public understands that, while regulation that results in risk-free environmental conditions is not possible, environmental regulation does not yet protect the public health – and hence personal health – as completely as it reasonably might; (2) the public health-related regulatory standards that do exist are fully enforced, both by governments and by citizens; and (3) these standards are continually updated and adjusted to achieve, so far as technology and society-dictated “reasonableness” allow, the larger public health-based goals of the federal pollution control statutes.