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# Improving Laws, Declining World: The Tort of Contamination

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# Monsanto Lecture

## IMPROVING LAWS, DECLINING WORLD: THE TORT OF CONTAMINATION

William H. Rodgers, Jr.\*

*Virtually nothing remains of the vibrant, diverse coral reef communities I helped describe [in Jamaica] in the 1970s.<sup>1</sup>*

### I. INTRODUCTION

Some of the more gripping realities are not dramatic and noticeable single events. They are not detectable and poignant phase-changes, not sit-up-and-take-notice catastrophes. They are, instead, slow and sorry declines, the winding down of good health, the loss of fond memories, animals gone, streams off limits, things not quite the way they were.

Jeremy Jackson of the Scripps Institution and his co-authors have captured this idea of declining natural capital in their articulation of the notion of the “baseline.”<sup>2</sup> As a young man, Jackson earned a name for himself by doing research on the coral reefs off Jamaica. He woke up one day to the realization that the coral reefs he worked on were gone—lost to overfishing, changing climates, and declining water quality. His experience as a researcher would never be duplicated by any other person.

Extended, this concept of the “baseline” sums up the intergenerational response to the gradual onset of pollution and the remorseless decline of natural capital.<sup>3</sup> Conditions are measured by

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<sup>1</sup> Randy Olson, *Slow-Motion Disaster Below the Waves*, L.A. TIMES, Nov. 17, 2002, at M2 (quoting Jeremy Jackson); see Jeremy B.C. Jackson et al., *Historical Overfishing and the Recent Collapse of Coastal Ecosystems*, *SCI.*, July 27, 2001, at 629.

<sup>2</sup> See Jackson et al., *supra* note 1. The 2001 *Science* article that popularized the idea of “shifting baselines” was identified by *Discover* magazine as the most important discovery of the year.

<sup>3</sup> The term “natural capital” is associated most closely with Robert Costanza et al., *The Value of the World’s Ecosystem Services and Natural Capital*, *NATURE*, May 15, 1997, at 253. Compare James Salzman, *Valuing Ecosystem Services*, 24 *ECOLOGY L.Q.* 887 (1997), with James

things remembered as a child. It was figuratively and literally a better world.<sup>4</sup> Figuratively, because the passing years and misty sentimentalities may put a positive spin on these memories and recollections. Literally, because virtually any measure of environmental quality will show decline over the time span of a single human generation.<sup>5</sup>

Jackson and his colleagues were especially concerned that the true state of affairs could be hidden in the seriatim and single-generational structure of the “baseline.” Grandpa would have his “baseline” remembrances and expectations, and dad after that and son after that. They would be in the proper ordinal order—grandpa’s “baseline” was more extravagant than dad’s, and dad’s was more ambitious than son’s. But what were the conditions when grandpa was a boy? Jackson and his colleagues give us a hint by calculating the incredible number of tortoises that could be found in the Caribbean at the time of Christopher Columbus. Grandpa already was living in a world of lowered expectations.

This article considers nature’s “baseline” through the lens of modern environmental laws. We measure this “baseline” like never before and are proud of our databases on fish advisories, beach closures, and impaired water bodies, to mention a few. The ubiquitous legal response to these measures of environmental decline is the public warning “Don’t Eat the Fish” and “Don’t Drink the Water.” This article assesses the function, utility, and purpose of these public warnings and finds them wanting. Their principal value is that they serve as measures of lost natural capital and harbingers of shifting baselines.

Our descriptive journey leaves us in a world habituated by what I describe as the tort of contamination. This tort is a civil wrong that works deprivations of natural capital. This article concludes by sketching in the contours of this tort and remedies responsive to it.

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Salzman, Barton H. Thompson & Gretchen C. Daily, *Protecting Ecosystem Services: Science, Economics and Law*, 20 STAN. ENVTL L.J. 309 (2001).

<sup>4</sup> Among my many memories of a world now gone are the drinking springs of cold, clear water in the Blue Hills of Massachusetts—a family stopping place on the way to Aunt Marjie’s in Randolph.

<sup>5</sup> The “State of the World” reports of Lester Brown and the Worldwatch Institute offer one measure of environmental conditions over time, available at <http://www.worldwatch.org/pubs/sow> (last visited Apr. 26, 2004).

## II. THE CONDITION—FISH ADVISORIES, DEAD ZONES, AND HOT SPOTS

A. *Fish Advisories*

In 2001, every state in the union, with the single exception of Wyoming, had issued fish consumption advisories urging restricted consumption due to contamination by substances such as mercury, dioxins, DDT, and chlordane.<sup>6</sup> The number of lake acres under advisory increased from twenty-six percent in 2000 to nearly twenty-eight percent in 2001. The number of river miles under advisory rose from ten and one-half percent in 2000 to fourteen percent in 2001.

A grab sample of these advisories reads:

*Advisory Location: Eagle Harbor*

Do not consume seafood within Eagle Harbor west of a line drawn between Wing Point south to creosote light #1, then west to the shore of Bainbridge Island.

*Advisory Location: Lake Whatcom*

Women of childbearing age and children under six [should] not eat smallmouth bass and [should] limit consumption of yellow perch to one meal a week.

*Advisory Location: King County*

Do not collect or consume bottom fish, shellfish, or seaweed from Puget Sound waters in King County, particularly where warning signs are posted.<sup>7</sup>

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<sup>6</sup> See ALISON CASSADY, PENNENVIRONMENT RESEARCH & POLICY CTR., IN GROSS VIOLATION 5 (2002) [hereinafter GROSS VIOLATION] (released on the thirtieth anniversary of the Clean Water Act); U.S. EPA, OFFICE OF WATER, UPDATE: NATIONAL LISTING OF FISH AND WILDLIFE ADVISORIES (2003), available at <http://www.epa.gov/waterscience/fish/advisories/factsheet.pdf>; Catherine A. O'Neill, *Variable Justice: Environmental Standards, Contaminated Fish, and "Acceptable" Risk to Native Peoples*, 19 STAN. ENV'T L.J. 3 (2000).

<sup>7</sup> IVY SAGER-ROSENTHAL, WASHINGTON PUBLIC INTEREST RESEARCH GROUP FOUNDATION, REEL TROUBLE: HOW WASHINGTON'S FISH-ADVISORY PROGRAM FAILS TO PROTECT CONSUMERS FROM TOXIC FISH app. B at 26-27 (2002) [hereinafter REEL TROUBLE]; see also Joanna Burger & Michael Gochfield, *Fish Advisories: Useful or Difficult to Interpret?*, 7 RISK 23 (1996).

### B. Beach Closures

Since 1988, there have been some 61,000 beach closings and 231 extended closings and advisories (six to twelve weeks) at United States beaches.<sup>8</sup> The EPA web site on beach closures<sup>9</sup> reports on a 1999 survey (1,444 coastal beaches responding), disclosing that twenty-six percent of the respondents (370 beaches) had an advisory and/or closing in effect.<sup>10</sup> Thirteen percent of coastal beaches experience at least one closure per year. The principal causes are combined and sanitary sewer overflows, malfunctioning sewage treatment plants and septic systems, and boating wastes.

### C. Toxic Tides

One consequence of pollution invasion of coastal waters is the appearance of toxic algae. Perhaps best known of this genre is an aquatic organism known as *Pfiesteria piscicida*, which has killed billions of fish and sickened people along various east coast rivers and estuaries.<sup>11</sup> But the problem is bigger than this, working periodic shutdowns of major portions of coastal waters. Scientists have identified fifty different species of toxic algae. Their *modi operandi* and targets “vary dramatically.”<sup>12</sup> These populations can periodically and unpredictably “mushroom almost overnight into vast blooms that can blanket hundreds of square miles of open water.”<sup>13</sup> These profusions of algae float atop the water and reside throughout it, “creating a toxic soup that extends to the sea floor.”<sup>14</sup> So far, there’s been “no stopping a red tide.”<sup>15</sup>

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<sup>8</sup> GROSS VIOLATION, *supra* note 6, at 5.

<sup>9</sup> See U.S. EPA, *National Health Protection Survey of Beaches for the 1999 Swimming Season*, at <http://www.yosemite.epa.gov/water/beach2000.nsf> (last updated Apr. 16, 2001).

<sup>10</sup> See *id.* The Natural Resources Defense Council reports regularly on beach closures. See NATIONAL RESOURCES DEFENSE COUNCIL, *TESTING THE WATERS 2003: A GUIDE TO WATER QUALITY AT VACATION BEACHES, EXECUTIVE SUMMARY*, at <http://www.nrdc.org/water/oceans/ttw/exesum.asp> (last visited Apr. 26, 2004).

<sup>11</sup> See RODNEY BARKER, *AND THE WATERS TURNED TO BLOOD: THE ULTIMATE BIOLOGICAL THREAT* (1997).

<sup>12</sup> See Janet Raloff, *Taming Toxic Tides: Can We Slay Poisonous Algal Blooms With Clay?*, *SCI. NEWS*, Nov. 30, 2002, at 344.

<sup>13</sup> *Id.*

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

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

#### D. Shellfish Bed Closures

The National Oceanic and Atmospheric Administration's ("NOAA's") National Shellfish Register identifies 4,200 shellfish-growing waters in the United States.<sup>16</sup> These extend across twenty-five million acres of estuarine and nonestuarine waters in twenty-one coastal states. Sixty percent of this acreage is approved for harvest. Forty percent of it is rated as prohibited, unclassified, restricted or conditionally approved. Among the pollution sources contributing to shellfish harvest limitations are urban runoff and wastewater from sewage treatment plants.

The following are typical shellfish bed closure notices:

No consumption of shellfish from the north end of Indian Island in and around the Boggy Spit Area is permitted by the Navy.

Do not consume fish or shellfish from the waterways at the south end of Commencement Bay.<sup>17</sup>

#### E. Impaired Water Bodies

EPA makes use of the so-called Section 305(b) reports of states, tribes, and territories to prepare inventories of impaired water bodies. A water body is "impaired" if it does not support designated uses or if it only partially supports designated uses.<sup>18</sup> The 1996 inventory found that forty percent of the nation's assessed rivers, lakes, and estuaries were impaired. These included nineteen percent of the nation's river and stream miles; forty percent of lake, pond, and reservoir acres; seventy-two percent of estuary square miles; and six percent of ocean shoreline waters.

An "impaired" water body can earn a particularly dramatic warning. Students of environmental justice remind us that "caution" in six different languages is stamped across the picture of a carp near the

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<sup>16</sup> Office of Ocean Resources Conservation and Assessment, *The 1995 National Shellfish Register of Classified Growing Waters*, at <http://spo.nos.noaa.gov:16080/projects/95register> (last visited Apr. 26, 2004).

<sup>17</sup> REEL TROUBLE, *supra* note 7, app. B at 26-27.

<sup>18</sup> For an explanation, see National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68722, 68726 (Dec. 8, 1999) (to be codified at 40 C.F.R. pts. 9, 122-124).

Columbia Slough Sediment Project in Portland, Oregon.<sup>19</sup> There are some who take pride in this generous commitment to spread the word to the most disadvantaged in our society.

#### F. *Human Body Burdens*

Authorities now regularly track contamination that settles in the human organism. The Centers for Disease Control and Prevention ("CDC") define biomonitoring as the "assessment of human exposure to chemicals by measuring the chemicals or their metabolites in human specimens such as blood or urine."<sup>20</sup> Chemicals found in these inquiries are one's body burden. "Normalcy" in this world of measuring unwelcome contaminants in human tissues is called the "background-exposure levels."<sup>21</sup> In March of 2001, the CDC released a much-heralded National Report on Human Exposure to Environmental Chemicals.<sup>22</sup> Happily, consumers will now be able to compare their own body burdens of mercury, molybdenum, uranium, and other contaminants with other folks living in other parts of the country.

Somewhat less happily, strategies for unloading these "body burdens" are not widely known. One wonders whether "body burdens" will become an inherent part of who we are—something like eye color, stature, or manner of speech.

#### G. *Drinking Water Advisories*

The EPA also tracks drinking water advisories.<sup>23</sup> One iteration of this regime is the so-called "boil-water notice," which recommends boiling water before drinking it. In the past four years, 725 communities have issued "boil-water notices" affecting three million people.<sup>24</sup> EPA also has a "consumer confidence" rule affecting 55,000 water systems

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<sup>19</sup> See NAT'L ENVTL. JUSTICE ADVISORY COUNCIL, FISH CONSUMPTION AND ENVIRONMENTAL JUSTICE 118 (2002), available at [http://www.epa.gov/compliance/resources/publications/ej/fish\\_consump\\_report\\_1102.pdf](http://www.epa.gov/compliance/resources/publications/ej/fish_consump_report_1102.pdf).

<sup>20</sup> CDC, NATIONAL REPORT ON HUMAN EXPOSURE TO ENVIRONMENTAL CHEMICALS 1 (2001), available at <http://www.cdc.gov/nceh/dls/report/pdf/completereport.pdf>.

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

<sup>22</sup> *Id.* at 17; see also Lynn L. Bergeson, *Chemical Body Burdens: A Look at Biomonitoring*, POLLUTION PREVENTION REV., Autumn 2001, at 75.

<sup>23</sup> U.S. EPA, WATER ON TAP: WHAT YOU NEED TO KNOW (2003), available at [http://www.epa.gov/safewater/wot/pdfs/book\\_waterontap\\_full.pdf](http://www.epa.gov/safewater/wot/pdfs/book_waterontap_full.pdf).

<sup>24</sup> *Id.*

and 248 million people nationwide.<sup>25</sup> This rule requires water systems to report annually on contamination of local drinking water sources.

#### *H. Dead Zones*

The term “dead zone” entered the parlance of modern pollution law with recognition of the 6,000- to 7,000-square-mile zone of “hypoxia” (oxygen-deficient region) in the Gulf of Mexico.<sup>26</sup> It is the product of the materials (invariably high in nutrients) draining from the interior watersheds of the Mississippi River Basin. This unusual condition is now systemic. NOAA’s National Estuarine Eutrophication Assessment program identifies forty-four estuaries along the nation’s coasts “showing high expressions of nutrient over-enrichment.”<sup>27</sup> Estuaries in this category

exhibit varying combinations of eutrophic conditions, including high expression of chlorophyll, macroalgal abundance problems, epiphyte abundance problems, low dissolved oxygen, nuisance and toxic algal blooms, and loss of submerged aquatic vegetation. Typically, this means that one or more of these symptoms occur over large areas of the estuary, annually or persistently, and/or for long durations.<sup>28</sup>

#### *I. Hot Spots*

A “hot spot” in Superfund parlance can be defined as: “[discrete areas] within a facility that contain hazardous substances or pollutants or contaminants that are present in high concentrations, are highly mobile, or cannot be reliably contained, and that would present a significant risk to human health or the environment should exposure occur.”<sup>29</sup> Although these pollutants often “cannot be reliably contained,” the remedy chosen can facilitate this least preferred outcome. Thus the end-point of a Superfund cleanup often is some version of “institutional

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<sup>25</sup> See Consumer Confidence Reports, 40 C.F.R. § 141.153 (2003).

<sup>26</sup> See NAT’L RESEARCH COUNCIL (U.S.), COMMITTEE ON THE CAUSES AND MANAGEMENT OF EUTROPHICATION, CLEAN COASTAL WATERS: UNDERSTANDING AND REDUCING THE EFFECTS OF NUTRIENT POLLUTION (2000) (an additional thirty-six estuaries “display moderate effects” of nutrient over-enrichment).

<sup>27</sup> *Id.* at 15.

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

<sup>29</sup> J.G. MILLER & C.H. JOHNSTON, THE LAW OF HAZARDOUS WASTE DISPOSAL AND REMEDIATION 685 (1996) (quoting S. 1834, 103d Cong. § 502 (1994)).

controls" ("signs and such"). Under Superfund, these remedies "can be utilized as a sole remedy where other remedies are not practicable."<sup>30</sup>

To extend the analogy and illustrate a "hot spot" now under the nurturing influences of "institutional control," consider life under the ozone hole in Punta Arenas, Chile. The residents

watch closely the color-coded warnings of a "solar stoplight" publicized on television and radio and even posted on street corners [t]here. Even on warm days, most people wear jackets or long-sleeved shirts or blouses. Many wear sunglasses and make sure to apply 50-proof sun block even when the sky is blanketed with clouds.<sup>31</sup>

The message is bleak: "People were warned to limit their exposure to the sun between noon and 3 p.m. to 21 minutes at most."<sup>32</sup> "It's a new way of living," says the Chilean Health Ministry.<sup>33</sup>

### III. REASONS FOR THE CONDITION — REGULATORY AND MARKET FAILURES

#### A. Contamination as a Norm

The nature of environmental injury made it possible for the law to understate it. It made it plausible for baselines to change for the worse.

Ecological injury is afflicted by features of gradualism, temporal and physical distance, high uncertainty, multiple causation, and resistance to monetary valuation.<sup>34</sup> All these characteristics allow contamination to occur. Small exposures not meeting legal thresholds are acceptable. Distance and uncertainty influence probability and are of defensive value. Burdens of proof and doubts about causation can stay the legal hand. Inability to put a monetary value on an injury often means there is no injury for legal purposes.

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<sup>30</sup> Ohio v. EPA, 997 F.2d 1520, 1537 (D.C. Cir. 1993).

<sup>31</sup> Larry Rohter, "Solar Stoplight" is a Fact of Life in City Under Hole in Ozone Layer, SEATTLE POST-INTELLIGENCER, Dec. 27, 2002, at A7.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> Richard J. Lazarus, *Restoring What's Environmental About Environmental Law in the Supreme Court*, 47 UCLA L. REV. 703, 744-48 (2000).

Some gross stories of under-regulation have yet to be told. The 1976 Toxic Substances Control Act is known colloquially as the "PCB Act." The empirical study is not yet done on the flurry of regulatory compromises in EPA rulemakings that secured PCBs as a pollution problem that will not go away.<sup>35</sup>

Some contamination is so stealthy and vast that undoing it is not within the realm of economic possibility. Choices thus made by private markets can impose contamination easements in perpetuity on public resources. The dredging of many miles of the Hudson River—with the spoils going where?—surely comes close to this edge of feasibility.<sup>36</sup>

Political decisions can excuse historical contamination that adjusts the baseline for the worse. The hallowed ground presided over for many years by the Anaconda, Montana, smelter is now legally, and irrevocably, contaminated territory.<sup>37</sup>

Contamination of natural capital—decline in the baseline—might be explained on the grounds of ownership failure. The commons may lack the vigorous champion of private entitlement. But the fish, the drinking water, the shellfish beds, and the body burdens do not appear to lack necessary plaintiffs. What is missing is a legal tool to correct the situation.

On this short list of reasons for a contaminated world, mention should be made also of legal theory and structure. A good example again is the Toxic Substances Control Act that embraced and extolled the "least adverse" theory of regulation.<sup>38</sup> The insight that drove this law, such as it was, was the inspiration that one should not choose the expensive solution if a cheaper one is at hand. Hardly a memorable calculus. But hidden within it is the arrogant assumption that regulators would be able to select the "least adverse" means of *achieving a*

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<sup>35</sup> See 3 W.H. RODGERS, JR., ENVIRONMENTAL LAW: PESTICIDES & TOXIC SUBSTANCES § 6.9 (West 1988) (with semi-annual updates).

<sup>36</sup> For a small chapter in this battle over a \$450 million dredging plan, see *New York Pub. Interest Research Group v. EPA*, 249 F. Supp. 2d 327 (S.D.N.Y. 2003) (involving a FOIA dispute).

<sup>37</sup> *Montana v. Atlantic Richfield Co.*, 266 F. Supp. 2d 1238 (D. Mont. 2003) (involving a CERCLA action to recover restoration costs for 17.8 square miles of contaminated land; this pollution is excused by the "wholly before" limitation (i.e., damages occurring before Dec. 11, 1980) in subsection 107(f)(1) of CERCLA, 42 U.S.C. § 9607(f)(1) (2000)).

<sup>38</sup> See 3 RODGERS, *supra* note 35, § 6.7, at 435-36.

*predetermined health or environmental end.* They could choose the cheapest means but they could not do it while preserving the desired ends.

This carries the story to the label, the warning statement, and the public notice – the preferred “solutions” to the tort of contamination.

### B. *Warning Statements as a Second Norm*

This is not the occasion for a full-blown dismissal of public warnings. Surely there are moments – the fire, the flood, the runaway elephant – where public warnings serve a purpose. Most of us would rather know about the bad water, contaminated shellfish, and failing rivers.

But public warnings have a decided downside. There are problems with the accuracy of the message. Are there truly measurable differences between Condition Orange (“High Risk of Terrorist Attacks”) and Condition Yellow (“Significant Risk of Terrorist Attacks”) in the Homeland Security Advisory System?<sup>39</sup> There are further problems with the assumption that human behavioral change in complex situations will be influenced in the slightest by signage or warnings. Anyone interested in empirical evidence on the futility of labeling should consult the considerable experience with pesticide labels.<sup>40</sup>

Typically, interest in warnings does not dwell extensively on the accuracy of the message or the utility of it. The reason is that warning messages (however poorly written and weakly subscribed to) still have enormous value in the United States economy as the least-adverse regulatory option. Warnings allow government agencies to “do something” on controversial questions. They allow industry to “concede something.” They allow the public to “gain something.” It is useful and convenient to believe in warnings. They are public and maudlin celebrations of win-win. They afford an appearance of action without significant disruption of the status quo. They divert attention from systematic failures to deal with the problem by other means. They shift responsibility from public decision-makers to an amorphous public at large. They are always the least adverse alternative. It is quibbling to ask whether they are always the least effective.

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<sup>39</sup> Ctr. for Def. Info., *Terror Alerts: The Homeland Security Advisory System*, at <http://www.cdi.org/terrorism/alerts.cfm> (Apr. 22, 2002).

<sup>40</sup> See 3 RODGERS, *supra* note 35, § 5.12.

So the world we live in is contaminated and poorer, while our environmental laws have grown in number and complexity. We are warned at the principal juncture.

What can we do about this condition?

#### IV. THE TORT OF CONTAMINATION

One approach would be for the courts to recognize and enforce a new tort of contamination. It would be defined as interference with the use and enjoyment of ecosystem functions. This tort is suggestive of nuisance law but free of the private nuisance connection to "property" and the public nuisance requirement of "rights in common."<sup>41</sup> It is crucial that protection be extended to natural capital and ecosystem services—Jackson's "baselines"—without fortuitous inquiries into technical property ownerships.

This would be a strict liability tort with elements being (1) contamination, (2) causation, and (3) prospects of remediation. The liability regime resembles that under federal and state Superfund laws that use a surrogate for contamination ("release" of a "hazardous substance") to fix liabilities.<sup>42</sup> Generally, the Superfund laws relinquish traditional tracing notions of "causation" with more general forms of "likely to have been a causative factor."<sup>43</sup> This approach is compatible with the high uncertainties customarily associated with ecological injury. It is amenable to widespread sharing of liabilities through contribution.

The term "contamination" conveys the nature of the injury. Contamination means to make impure or corrupt by contact or mixture.<sup>44</sup> Loss of ecological value or function is the key. Instantly, the various ranking and advisory regimes are put into play in defining the necessary threshold. Fish that are not supposed to be consumed on the word of proper authorities are presumptively contaminated. Drinking water that is not drinkable is presumptively contaminated. Shellfish

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<sup>41</sup> Compare 1 WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW: AIR & WATER § 2.4 (West 1988), with 1 *id.* § 2.2.

<sup>42</sup> See 4 WILLIAM H. RODGERS, JR., ENVIRONMENTAL LAW: HAZARDOUS WASTE & SUBSTANCES § 8.11, at 649-57 (West 1992).

<sup>43</sup> See *id.* § 8.11, at 660-66.

<sup>44</sup> I do not wish to repeat the mistake of the Clean Water Act that was susceptible to readings that pollutants are only something that is "added" to the outside world. See 33 U.S.C. § 1302(12) (2000) (defining "discharge of a pollutant"). "Contamination" is a consequence, not a means.

beds declared off limits by those empowered are presumptively contaminated.

The designation of parties with standing to sue for the tort of contamination could follow the model of the federal Superfund natural resource damage provisions.<sup>45</sup> This nominates state and federal governments and the Indian tribes as natural resource damage lawsuit trustees. The list could be expanded to include local governments and even nongovernmental organizations with a demonstrated track record. The important point is that the tort of contamination protects public interests, and appropriate plaintiffs should be selected with that goal in mind.

The remedy for the tort of contamination should be strictly equitable. The interests of which we speak are inalienable, and remedies should strive to restore and rehabilitate that which has been wrongfully taken. The history of monetary compensation for loss of sustainable resources is not a happy one. These “cash-outs” can create momentary winners but with a poor distribution and sadly skewed (and sometimes opportunistic) calculation of what has been lost. Attorneys are an important and valuable part of this system so their economic incentives must be part of the remedial scheme.

## V. CONCLUSION

This tort of contamination is mostly descriptive of events occurring in multiple niches of environmental law. Add or subtract a fact or two from events described above and one can see many doctrinal possibilities—nuisance and trespass law, water rights theories, public trust, Indian reserve rights, and trust doctrines. But these doctrines have gaps and flaws and peculiarities that mark their own origins and histories. It is time to recognize the new world in which we live. This world is described by Robert Costanza and mourned by Jeremy Jackson.

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<sup>45</sup> See 42 U.S.C. § 9607(f) (2000). Compare 43 C.F.R. § 11.14 (2002), which describes “injury” as:

a measurable adverse change, either long- or short-term in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from an exposure to a discharge of oil or a release of a hazardous substance, or exposure to a product of reactions resulting from the discharge of oil or release of a hazardous substance.

See *Coeur d’Alene Tribe v. ASARCO, Inc.*, No. CV 91-0342-N-EJL, 2003 WL 22092571 (D. Idaho Sept. 3, 2003) (Lodge, J.) (ruling on an important natural resource decision).

These trends of regret need a new tool of civil resistance—the tort of contamination.

