

# ESSAY

## Cracking the Floodwall Code

Stanley A. Millan\*

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### I. GENERAL—WHEN LEVEES FAIL

“[W]hile there are men, there can be no peace.”<sup>1</sup> Wars do not have to be fought with weapons of mass annihilation. Lies, broken promises, and doubt can bring their own seeds of destruction. Were New Orleans’ levee systems enigmas or props? Is New Orleans the new Pompeii? Only hope and perseverance can survive. This Essay may bring a ray of hope to the legal minded in the flood fights of both present and future.

People are looking for someone or some entity to blame or scapegoat for the failed levees, water works, and floodwalls in Orleans and adjacent parishes during Hurricane Katrina’s aftermath in 2005. The storm became a meteorological enema to the cultural, social, and physical environment of this area. But who inserted the poison pill? This is not just about anger, but also about economic survival. Class actions, FEMA, Write Your Own Flood Policy Companies, homeowner insurers, the United States Army Corps of Engineers (Corps), public works contractors, and local and state governments have turned flood

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\* S.J.D., Special Counsel, Jones, Walker; Associate Adjunct Professor of Law, Tulane University School of Law; Lecturer, Loyola Law School; and Instructor, UNO Paralegal Studies Program. This Essay is an expanded version with footnotes of a presentation at the 11th Annual Tulane Environmental Law Conference in New Orleans on April 1, 2006. The views herein are for discussion and are not admissions of any sort nor binding on any Jones, Walker clients. The author is not a litigant but is a flood victim.

1. Charles Beaumont, *The Twilight Zone: Elegy* (CBS television broadcast Feb. 19, 1960).

victims into predators, and these entities are their prey. No one knows yet how successful plaintiffs will be legally, or if they look to good will and the public fisc for help.

However, of the many entities that could be named, certainly the Corps is in the legal crosshairs for the failure of the levees, from newspapers and scientists, to lawyers. The Corps is providing most of the funds for what flood control measures can be fixed in the near future, but longer-term measures remain uncertain. Two causes of action stemming from Hurricane Katrina that I will address preliminarily are suits against the Corps based on the Federal Tort Claims Act (FTCA) and inverse condemnation. Certainly state analogs, maritime law, and private tort claims can apply to other defendants, but the focus here will be on the Corps. (An environmental statute is another option, and it is mentioned *infra* note 43, but is otherwise beyond the scope of this Essay.)

## II. FTCA

This Act provides a limited waiver of federal sovereign immunity when federal employees are negligent and act within the scope of their employment.<sup>2</sup> The United States can be sued under circumstances where the United States, if it were a private person, would be liable in accordance with applicable state law.<sup>3</sup>

To sue, one first must timely file an administrative claim within two years after a claim accrues.<sup>4</sup> The government then has a six-month time period to review the claim before a suit in federal district court can be filed by a plaintiff.<sup>5</sup> Failure to take this step in the administrative claim process will result in dismissal of an FTCA lawsuit.<sup>6</sup> Alleging a sum certain in property and personal injury damages is a key part of an administrative claim or else a subsequent FTCA lawsuit is jeopardized. The Act focuses on negligence and excepts from its coverage intentional

2. 28 U.S.C. § 1346(b) (2000).

3. *Id.*

4. Standard Form No. 95-Claim for Damage, Injury or Death, *available at* <http://www.usdoj.gov/civil/forms/SF95.pdf> (last visited Sept. 8, 2006); *see also* 28 U.S.C. § 2401(b); JOSEPH ROUSE, U.S. ARMY CLAIM SERV., OFFICE OF THE JUDGE ADVOCATE GEN., FEDERAL TORT CLAIMS HANDBOOK (2003), *available at* <http://jagcnet.army.mil> (enter "Federal Tort Claims Handbook" into search engine; then follow "Claims" hyperlink).

5. 28 U.S.C. § 2680(a); *id.* § 2401(b) (stating that a suit must be filed within six months "of notice of final denial of the claim by the agency to which it was presented").

6. *Id.* § 2401(b); *see, e.g.*, *Kinson v. United States*, 322 F. Supp. 2d 684, 685 (E.D. Va. 2004); *Johnson v. Al Tech Specialties Steel Corp.*, 731 F.2d 143, 146 (2d Cir. 1984); *Johnson v. Smithsonian Inst.*, 189 F.3d 180, 189 (2d Cir. 1999) (citing *United States v. Kubrick*, 444 U.S. 111, 117-18 (1979)).

torts, such as assault, battery, deceit, negligent and deliberate misrepresentation, etc.<sup>7</sup>

### III. DISCRETIONARY FUNCTION EXCEPTION

Further, the Act precludes certain claims arising out of an act or omission of a federal employee exercising due care in the execution of a statute or regulation, valid or not, and discretionary functions.<sup>8</sup> The former exception has limited application, but the latter discretionary function exception is broader. The federal government is thus not liable for its actions or decisions based on public policy considerations.<sup>9</sup>

If governmental judgment or choice is involved, and is based upon social, economic, or political considerations, an FTCA claim will be barred.<sup>10</sup> For example, the government (and its contractors) was ruled to be immune from tort liability for designing a “death trap”; it was apparently too costly to design a helicopter emergency escape hatch that would open under water.<sup>11</sup>

Negligence is irrelevant to discretion.<sup>12</sup> However, if the agency fails to act in accord with a mandatory statutory or regulatory directive, the discretionary function exemption does not apply.<sup>13</sup> Formal agency policy may also suffice as a mandatory directive.<sup>14</sup> Guidelines are not enough, legally, to establish a standard by which a breach would give rise to liability.<sup>15</sup>

Therefore, federal tort claims could face discretionary function challenges in court by the United States, depending on the type of allegation made. The government could feasibly raise the discretionary function challenge if, for instance, it is alleged that the Corps did not build higher levees than authorized, did not implement levee repairs at a quicker or more even pace, did not elect to armor all levees, did not sooner close certain public waterways or canals, did not quickly provide enough pumping capacity for closed or narrowed drainage canals, and

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7. 28 U.S.C. § 2680(a)-(h).

8. *Id.* § 2680(a).

9. *United States v. Gaubert*, 499 U.S. 315 (1991) (discussing management of banking affairs).

10. *See Berkovitz v. United States*, 486 U.S. 531, 538-39 (1988); *United States v. S.A. Empresa de Viacao Aerea Rio Grandense (Varig Airlines)*, 467 U.S. 797, 820 (1984).

11. *See Boyle v. United Techs. Corp.*, 487 U.S. 500 (1988).

12. *Barnson v. United States*, 816 F.2d 549 (10th Cir.), *cert. denied*, 484 U.S. 896 (1987).

13. *Berkovitz*, 486 U.S. at 546.

14. *Id.*

15. *Id.*

did not favor some communities' risk over navigational or "efficiency" interests. However, a discretionary function challenge by the United States would be ineffective if the government violated statutes, rules, or binding policy in its decisions or inaction.

Levees are not under the tight scrutiny of a law like the Dam Safety and Security Act of 2002.<sup>16</sup> It is still open to question whether parts of the New Orleans area federal flood control projects were designed and built according to congressionally mandated standards.<sup>17</sup> The recently resigned Chief of Engineers and commander of the Corps has admitted that "[w]e have now concluded we had problems with the design of the structure [e.g., the 17th Street Canal Floodwall]. We had hoped that wasn't the case, but we recognize it is the reality," and that "we had a catastrophic failure with one of our projects."<sup>18</sup> For instance, were floodwalls and levees vigorously designed and constructed to meet the congressionally approved plans and recommendations of the Chief of Engineers in the Flood Control Act of 1965, for the Lake Pontchartrain and Vicinity Hurricane Protection Project,<sup>19</sup> e.g., the project storm, now called a Saffir-Simpson Hurricane Scale Category 3 Hurricane?<sup>20</sup> This is a statute that the Corps has no discretion to violate. There lies the rub. The debate persists over whether flooding was caused by levees being overtopped (or pushed over) by a greater hurricane (Category 4), or was most of the flooding caused by levees and floodwalls that were not Category 3 survivable.<sup>21</sup> Failure to take into account area subsidence or

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16. 33 U.S.C. § 467 (2000).

17. See Bob Marshall, *Levees Built Using Obsolete Standards*, TIMES-PICAYUNE (New Orleans), May 1, 2006, at A1; Bill Walsh, *Category 3 Pledges Ring Hollow*, TIMES-PICAYUNE (New Orleans), May 3, 2006, at A1. The Corps' Interagency Performance Evaluation Task Force has recently admitted that the system used to determine flood protection need, risks, and funding is flawed, and that flooding of much of New Orleans would have occurred without the breaches. Bob Marshall, *Report: Flood Policy Flawed*, TIMES-PICAYUNE (New Orleans), June 2, 2006, at A1 (quoting Lt. Gen. Carl Strock) [hereinafter Marshall, *Report: Flood Policy Flawed*]. This *mea culpa* seems to be hinting at flaws in Congress more so than the Corps and begs the discretionary function exemption. Was the flood protection Category 3 survivable or not?

18. Bill Walsh, *Corps Chief Admits to 'Design Failure'*, TIMES-PICAYUNE (New Orleans), Apr. 6, 2006, at A1 (quoting Lt. Gen. Carl Strock); Marshall, *Report: Flood Policy Flawed*, *supra* note 17.

19. Flood Control Act of 1965, Pub. L. No. 89-298, 79 Stat. 1073 (1965).

20. U.S. GEN. ACCOUNTABILITY OFFICE, LAKE PONTCHARTRAIN AND VICINITY HURRICANE PROTECTION PROJECT GAO-05-1050T (Sept. 28, 2005), available at <http://www.gao.gov/new.items/d051050t.pdf>.

21. See Robert Travis Scott, *Katrina Flooding Reasons Still Being Debated; Overtopping, Says Corps; Breaches, Says LSU Analyst*, TIMES-PICAYUNE (New Orleans), Apr. 26, 2006, at A4.

water pressure on floodwalls certainly sounds like a negligent failure to meet the standards of the 1965 Act.<sup>22</sup>

#### IV. FLOOD WATERS

More pointed, the Flood Control Act of 1928 bars claims against the United States “for any damage from or by floods or flood waters at any place.”<sup>23</sup> Though derived from the great Mississippi River flood of 1927,<sup>24</sup> courts have, rightly or wrongly, broadly applied this immunity geographically.<sup>25</sup> Courts have also focused on immunizing the federal government exclusively from damages by all flood control projects. In 2001, the United States Supreme Court in *Central Green Co. v. United States* changed the Act’s immunity analysis from the character of the project (flood control or not) to the character and purpose of release of the waters that caused damage (for example, the release of flood waters from a reservoir).<sup>26</sup> In *Central Green*, it was argued that it was irrigation, not flood water, that allegedly caused subsurface property damage, but the Court remanded the issue to see if immunizing flood waters were also involved.<sup>27</sup> Simply put, not all damaging water is “flood or flood waters” under the 1928 Act; but nonflood waters can still cause damages that are recoverable under the FTCA. Some waters allow for governmental immunity, and others create governmental liability.

Thus, the government’s blowing a levee to flood area *A* and spare area *B*, à la *Rising Tide*, is likely an immunized “flood,” but storm waters from canal seepage eroding subsurface soils may allow for FTCA

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22. See Seth Borenstein, *Study: N.O. Sinking Faster Than Thought*, TIMES-PICAYUNE (New Orleans), June 1, 2006, at A11; see also John Schwartz, *Army Corps Admits Flaws in New Orleans Levees*, N.Y. TIMES, June 2, 2006, at A1.

23. 33 U.S.C. § 702(c) (1928). This is but a small portion of a more detailed statute.

24. See, e.g., JOHN M. BARRY, *RIISING TIDE: THE GREAT MISSISSIPPI FLOOD OF 1927 AND HOW IT CHANGED AMERICA* (1997).

25. See Kent C. Hofman, *An Enduring Anachronism: Arguments for Repeal of the 702c Immunity Provision of the Flood Control Act of 1928*, 79 TEX. L. REV. 791, 796-802 (2001). Irrigation canals, navigation canals, lake reservoirs, and rivers have been argued by the government to be covered by this immunity. However, one court, noting the Act’s vague legislative history, has excluded navigation projects from the 1928 Act. See *Graci v. United States*, 456 F.2d 20, 22-28 (5th Cir. 1971), *writ denied*, 93 S. Ct. 2752 (1973). This holding may still stand, notwithstanding *Central Green Co. v. United States*, 531 U.S. 425 (2001). In light of the remedial nature of the FTCA and strict construction of sovereign immunity waiver in that FTCA context, flood water exceptions should be narrowly construed. See, e.g., *Dolan v. U.S. Postal Serv.*, 126 S. Ct. 1252 (2006).

26. *Cent. Green Co.*, 531 U.S. at 425.

27. See *id.*

damages.<sup>28</sup> Tidal surges do not automatically flood developed land, and storm waters are not automatically flood waters. The logical problem with this analysis is that once a tidal surge or storm water erodes a levee or scours in flood wall banks, the inland character of the lake or storm water appears to become flood waters. I would rather just call the resulting occurrence “property damages.”<sup>29</sup> Under *Central Green’s* analysis, there would still be no planned “purpose” to release waters, only a floodwall failure that led to a release of water.

Reservoir water was not released; levees eroded and flood walls broke. Perhaps all fugitive lake water and storm water are not immunized “flood or flood waters” under this Act, and the FTCA’s liability applies. This argument will require lower courts to rethink the 1928 Act and also consider the following issues:

1. Was the Flood Control Act of 1928 for the Mississippi River and its tributaries intended to apply to another federal undertaking, i.e., the Lake Pontchartrain and Vicinity Hurricane Protection Project?
2. If so, was the quid pro quo satisfied, e.g., adequate Mississippi River main line levees versus Lake Pontchartrain inadequate levees and flood walls, or promise of compensated flowage easements along the Mississippi River versus no compensation for inadvertently created flowage easements in areas near Lake Pontchartrain that flooded in 2005?<sup>30</sup>
3. Is nonflood water, i.e., storm water, captured in drainage canals, and which is not intended to be released inland, statutory “flood or flood waters” when it breaks through and causes damage?
4. How much flooding was due to, not flood, but navigation waters (the Mississippi River Gulf Outlet)?
5. Was the 1928 Act repealed by implication of the FTCA in 1945 or the Flood Control Act of 1965?<sup>31</sup>

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28. BARRY, *supra* note 24, at 245-58.

29. Interestingly, by analogy, FEMA regulations at 44 C.F.R. § 61, appendix A(3) (2003), limit what is called “flooding,” that is, overflow of land or tidal waters, unusual or rapid accumulation of runoff, or mudflow. Broken floodwalls and subsurface seepage do not appear to be covered.

30. *See, e.g.*, 33 U.S.C. § 702(c) (2000).

31. An implied repeal is plausible. *See, e.g.*, *Dolan v. U.S. Postal Serv.*, 126 S. Ct. 1252 (2006). However, implied repeals are not favored. *See Lockhart v. United States*, 126 S. Ct. 699, 704 (2005) (Scalia, J., concurring). Implied repeals exist when two statutes conflict or where a

## V. TAKING

On the other side of the coin, we turn from torts to compensable takings under the Fifth Amendment to the United States Constitution. Property damage and taking are close but are not the same, legally or morally. A constitutional taking claim cannot be barred by an Act of Congress, like the Flood Control Act of 1928.<sup>32</sup> Temporary takings are compensable.<sup>33</sup> Federal flooding is certainly eminent domain at the apex of abuse, but legal proof of a Katrina related flood taking claim may be more difficult than a FTCA case.

Inverse condemnation is a taking claim against the government to recover the value of property taken by the agency, though no formal exercise of eminent domain has been completed.<sup>34</sup> Some takings are per se, such as those involving a physical invasion of land or those involving confiscatory regulations (e.g., zoning) that deprive owners of all economically viable use of their property.<sup>35</sup> Otherwise, a balancing test is used to determine if public action is a taking, including the character of the government action, interference with reasonable investment-backed expectations, and the economic impact of government actions.<sup>36</sup> The effect of the flooding here is on private property. Flooding is a physical invasion of property and should constitute a per se taking. The question becomes: (1) was the flooding predictable, and (2) what is the value of property interest taken—e.g., easement or fee title?

Unintended invasion of private property from government activity, e.g., a flowage easement, may thus amount to a foreseeable appropriation or inverse condemnation.<sup>37</sup> The public purpose of the taking would be

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latter Act covers the whole subject of the earlier one and is clearly intended as a substitute. Certainly, the Flood Control Act of 1965 covers Lake Pontchartrain while the 1928 Act does not.

32. See Hofmann, *supra* note 25, at 796-802; see also *Lenoir v. Porters Creek Watershed Dist.*, 586 F.2d 1081, 1088 (6th Cir. 1978).

33. See *First English Evangelical Lutheran Church v. County of Los Angeles*, 482 U.S. 304, 318 (1987). *First English* involved a regulatory taking. Here, we are talking about a direct physical taking, which should be even more actionable.

34. Walter S. King, *The Fifth Amendment Takings Implications of Air Force Overflight and the Air Installation Compatibility Use Zone Program*, 43 A.F. L. REV. 197, 197 n.2 (1997) (quoting BLACK'S LAW DICTIONARY 424 (5th ed. 1983)).

35. See *Lucas v. S.C. Coastal Council*, 505 U.S. 1003, 1028-29 (1992).

36. See *Penn. Cent. Transp. Co. v. New York*, 438 U.S. 104, 124 (1978).

37. *Ridge Line, Inc. v. United States*, 346 F.3d 1346 (Fed. Cir. 2003). Predictability, regardless of negligence, is the issue here. See also *United States v. Causby*, 328 U.S. 256 (1946). The fact that a plaintiff has alternate or distinct theories of recovery—negligence in tort and, perhaps, overlapping inverse condemnation—should not bar the latter. See *Warner/Electra/Atl. Corp. v. City of DuPage, Ill.*, 771 F. Supp. 911, 915-16 (N.D. Ill. 1991), *aff'd*, 991 F.2d 1280 (7th Cir. 1993).

the long term political illusion of flood control up to a point after the inevitable flooding event occurs. *Ridge Line, Inc. v. United States*, dealing with increased flooding from a federal project, held that to constitute a compensable taking, (1) the government must intend to invade a protected interest, or the asserted invasion is the direct, natural, or probable result of an authorized activity; and (2) an invasion must either appropriate a benefit to the government at the expense of the property owner, or preempt the owner's right to enjoy his property for an extended period of time (rather than inflict incidental or consequential injury that reduces its value).<sup>38</sup> The effect does not have to be infinite to be compensable.<sup>39</sup> In other words, the flooding must be predictable, and the landowner must be deprived of beneficial use of his or her land.

We have seen the Corps teams and National Science Foundation scientists dispute the obvious (for example, whether it was predictable that a poorly designed or built flood wall could cause floods).<sup>40</sup> This is a question of fact and expert opinion, but predictability and foreseeability may temper any findings. The mere fact that flooding was not anticipated by some Corps officials does not signify that flooding would have been unpredictable by other reasonable engineers. In terms of magnitude, we had one Katrina flood in 2005, the extent and duration of which reclaimed parish lands that were once swamps many decades ago ("the worst urban natural [and man-made] disaster in American history"<sup>41</sup>), and the process of natural reclamation continues. A comprehensive taking analysis will contemplate issues of both direct and indirect causation.<sup>42</sup>

If direct government action caused physical invasions by flooding that are substantial, even if the frequency is not yet fully known, it is still arguably more than a mere stigma or tort in scope. The delay in private

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38. *Ridge Line*, 346 F.3d at 1355.

39. *Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 419, 441 (1982).

40. See CORPS FINAL DRAFT REPORT: PERFORMANCE EVALUATION OF THE NEW ORLEANS AND SOUTHEAST LOUISIANA HURRICANE PROTECTION SYSTEM; DRAFT FINAL REPORT OF THE INTERAGENCY PERFORMANCE EVALUATION TASK FORCE (2006), available at <https://ipet.wes.army.mil/>. *Contra* Sheila Grissett, *Team Pushes for Levee System Overhaul*, TIMES-PICAYUNE (New Orleans), May 23, 2006, at A1; IVOR VAN HEERDEN, *THE STORM: WHAT WENT WRONG AND WHY DURING HURRICANE KATRINA—THE INSIDE STORY FROM ONE LOUISIANA SCIENTIST* (2006). Amid new scientific criticism, the Corps may be recanting some of the denials in their team's report. Sheila Grissett et al., *New Report Disputes Corps-Led Levee Probe*, TIMES-PICAYUNE (New Orleans), Oct. 26, 2006, at A1, A-10.

41. Gordon Russell et al., *It's Nagin: 'It's Time for Us To Be One New Orleans'*, TIMES-PICAYUNE (New Orleans), May 21, 2006, at A1.

42. See *Applegate v. United States*, 35 Fed. Cl. 406 (1996).



land use is further exacerbated by uncertainty in funding, flood maps, insurance, contractors, etc., which are all in the ripple of the indirect taking in federally caused flooding, as well as by possibly new contamination in many areas.<sup>43</sup> A more permanent taking would transcend a flowage easement and perhaps require payment for fee title, based on the property's market value, including its highest and best use at the time of the taking.<sup>44</sup> Value would be a jury question.

Of course, unlike personal injury and property damages in the FTCA, taking claims entitle property owners to just compensation only.<sup>45</sup> Suit would not be filed in the United States District Court, like the FTCA, but in the United States Court of Federal Claims, if more than \$10,000.00 is involved.<sup>46</sup> The time limitation is more generous than the FTCA (six years, compared with the FTCA's two-year window), and only

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43. This raises the specter of federal cleanup liability under CERCLA. 42 U.S.C. § 9601 (2000). CERCLA waives federal sovereign immunity. *Id.* § 9620(a)(1). Liability under CERCLA is based on a release, or threatened release, of a hazardous substance from a facility which causes the occurrence of response costs (not private damages). *Id.* § 9607. Responsible parties include facility owners, facility operators, arrangers of waste disposal, and certain transporters. *Id.* The levees and flood walls are arguably the "facility" which was owned or operated by the United States. The United States could also have arranged the CERCLA release or threatened release, by participating in faulty levee inspection with local interests. *See, e.g.,* GenCorp v. Olin Corp., 390 F.3d 433 (6th Cir. 2004) (holding in part that a company's involvement in technical committees at a facility can create CERCLA arranger liability for that company). The Corps' failure resulted in the release of waters containing hazardous substances (benzene, heavy metals, etc.). The waters also threatened and caused release of pollutants or contaminants (salt water, mold, and bacteria, which are injurious or lethal to fresh water and land based life), and which are covered by CERCLA. 42 U.S.C. § 9601(33). Response costs could include decontamination, gutting, relocation, etc. *Id.* § 9601(23). Following the National Contingency Plan may be problematic. *Id.* § 9607(a)(4)(A)-(B). CERCLA coverage of cleanup costs for pollutants and contaminants is less clear than for hazardous substances. *See* Jastram v. Phillips Petroleum Co., 844 F. Supp. 1139 (E.D. La. 1994). The "act of God" defense could be raised too, but this CERCLA defense is narrower than at common law, e.g., the release must be caused "solely" by the hurricane and not aided by a lack of due care. *See* 42 U.S.C. §§ 9601(l), 9607(b); *e.g.,* Apex Oil Co. v. United States, 208 F. Supp. 2d 642 (E.D. La. 2002). The Court of Federal Claims arguably has jurisdiction over a taking claim, discussed above, even though a FTCA or CERCLA claim is pending in a federal district court. *See* 28 U.S.C. § 1500; *e.g.,* OSI, Inc. v. United States, 2006 U.S. Claims LEXIS 272 (COFC 2006). This is because the relief is different in each cause of action—just compensation versus tort damages or CERCLA cost recovery—if properly plead. Although the EPA gave New Orleans a clean bill of health after Katrina, *see* Matthew Brown, *Final EPA Report Deems N.O. Safe*, TIMES-PICAYUNE (New Orleans), Aug. 19, 2006, at A1, the agency still notes widespread lead elevations around the city that were not caused by Katrina but, some argue, could have been exacerbated and released during the flooding.

44. *Cooley v. United States*, 46 Fed. Cl. 538, 550-53 (2000), *aff'd in part, vacated in part*, 324 F.3d 1297 (Fed. Cir. 2003).

45. *United States v. Gen. Motors Corp.*, 323 U.S. 373, 378-80 (1945).

46. 28 U.S.C. § 1346(a)(2) (2000); *id.* § 1491(a)(1).

the tort actions against the United States are without benefit of a jury.<sup>47</sup> The property owner must also retain title at the time of taking to recover.<sup>48</sup>

## VI. CONCLUSION

Litigating with the federal government is no easy task. Other litigation options exist at the state, private and local levels, and all are starting to play out. Running the course here is like tiptoeing through the undulations of a Loch Ness monster—expensive to even locate. Bailouts and buyouts may be the best option in the long run, even if they leave New Orleans and vicinity in a Davy Jones-like “death trap” should people stay, which many will.

Now a parting thought as I go beyond legal. Perhaps our biggest shortcoming is that, with our heads still bowed, we are gazing too low to find the bigger solutions. We should also look up with the cloud physicists for answers, and not focus solely on engineers working at ground level (and perhaps recreating the same errors).<sup>49</sup> Atmospheric modification has long been within the realm of science, but is now ignored for political reasons.<sup>50</sup> Feasible seeding techniques may slow the leading edge of tropical energy sails and weaken their vortex. At least that option should not be ignored. Levees, even good levees, should not be left to do their work alone. Federal funds (including damage awards), flood walls, coastal restoration, barriers, shore stabilization, a sea change in flood protection, oversight, and smart regrowth are all part of the salvation needed.<sup>51</sup> Amen.

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47. *Id.* § 2401(a); *id.* § 2402.

48. See *Applegate v. United States*, 35 Fed. Cl. 406 (1996).

49. Poor levee rebuilding may have its own share of federal immunity. 42 U.S.C. § 5148 (2000). This immunity would not be from CERCLA. *United States v. City of New Orleans*, 2003 U.S. Dist. Lexis 16765 (U.S.D.C. E.D. La. Sept. 19, 2003).

50. *Weather Modification and S. 517, The Weather Modification Research and Technology Transfer Authorization Act of 2005: Hearing on S. 517 Before the Subcomms. on Science and Space, and Disaster Prevention and Prediction, of the S. Comm. on Commerce, Science, and Transportation*, 109th Cong. 5 (2005) (statement of Dr. Joseph H. Golden, Senior Research Scientist, Cooperative Institute for Research in the Environmental Sciences), <http://commerce.senate.gov/pdf/golden.pdf>.

51. Oliver Houck, *Can We Save New Orleans?*, 19 TUL. ENVTL. L. REV. 1, 1-68 (2006). Alas, no one has conceived of the “promised land” of a definitive smart map yet. Go up, go back, or just go away, are our only guides now.