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# Federal Environmental Exemptions for Natural Disasters and the Case for Ecosystem Resilience

## I. INTRODUCTION

Natural disasters or emergency conditions often spur environmental laws. In many instances, origins of federal environmental schemes can be traced to specific ecological fallouts.<sup>1</sup> Imagine the Oil Pollution Control Act without the Exxon Valdez oil spill in Prince William Sound, the Clean Water Act without the Cuyahoga River fire, or the Comprehensive Environmental Response, Compensation, and Liability Act without Love Canal.<sup>2</sup>

Although natural disasters and emergency conditions push lawmakers to promulgate new environmental laws, the need for quick and efficient response to a disaster may go against requirements of pre-existing environmental laws.<sup>3</sup> Disasters are often unanticipated, and the harm they cause to humans and the environment are impossible to predict in detail. Every minute in disaster response is critical to human health and safety, and even minor delays can lead to dangerous circumstances for victims. In such emergency situations, complying with all applicable laws or persuading Congress to pass laws granting permission to bypass environmental laws wastes valuable time.<sup>4</sup> The executive branch needs flexibility, and federal environmental exemptions can grant this flexibility.<sup>5</sup> Environmental exemptions suspend or completely waive compliance with environmental laws.

Environmental exemptions, however, promote taking action without sufficient information or data.<sup>6</sup> This lack of information can result in rash decisions that lead to unexpected long-term environmental

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1. Keith H. Hirokawa, *Disasters and Ecosystem Services Deprivation: From Cuyahoga to the Deepwater Horizon*, 74 ALB. L. REV. 543, 546–47 (2010) (quoting Michael Allan Wolf, *Environmental Law Slogans for the New Millennium*, 35 U. RICH. L. REV. 91, 99 (2001)).

2. *See id.* (quoting Wolf, *supra* note 1).

3. DANIEL A. FARBER, JAMES MING CHEN, ROBERT R.M. VERCHICK & LISA GROW SUN, *DISASTER LAW AND POLICY* 185 (3d ed. 2015).

4. Kate R. Bowers, *Saying What the Law Isn't: Legislative Delegations of Waiver Authority in Environmental Laws*, 34 HARV. ENVTL. L. REV. 257, 302 (2010).

5. *Id.*

6. *See* Gregg P. Macey, *Environmental Crisis and the Paradox of Organizing*, 2011 BYU L. REV. 2063, 2089 (2011) ("Decisions about what became high-volume, subsea dispersant application were made in narrow time frames without the chance to gather sufficient data.").

harm. Without sufficient procedural requirements in place, these unexpected harms can materialize without proper knowledge of their existence. Instead of abandoning environmental laws after a natural disaster or emergency, federal agencies should place greater focus on protecting the environment to help make ecosystems more resilient for future disasters. By shifting the focus after a natural disaster or emergency away from short-term community recovery towards long-term ecosystem resilience, natural environments vulnerable to disasters can be better equipped to brace against the impact of future natural disasters or emergencies.

Part II of this paper discusses the environmental harm caused by various natural disasters, like Hurricane Katrina and Hurricane Harvey, and some of the environmental exemptions invoked in response. Part III lays out the various federal environmental exemptions for emergencies. Part IV describes the bills proposed after Hurricane Katrina seeking to provide even more avenues to bypass environmental laws for disaster recovery and cleanup. This section argues that rather than turning to environmental exemptions after disasters, the focus should be on long-term preservation and rebuilding ecosystems to be more resilient to future disasters. Part V concludes this paper by arguing that invoking environmental exemptions should always require appropriate federal agencies to complete and submit for public comment a report detailing the environmental exemptions invoked.

## II. ENVIRONMENTAL HARMS FROM DISASTERS

Natural disasters often result in extreme environmental harm. Hurricane Katrina and Hurricane Harvey were among the worst environmental disasters in United States history. Both hurricanes sent storm surge through cities. Contaminated floodwaters poisoned every surface touched. Federal environmental exemptions were immediately invoked by agencies after both Hurricane Katrina and Hurricane Harvey, and already damaged ecosystems were further harmed by these exemptions. Communities who suffered from Hurricane Harvey's wrath only became aware of the resulting environmental harms several months after the harm occurred.

*A. Hurricane Katrina*

Hurricane Katrina tore through New Orleans in August 2005 and left behind contaminated floodwaters, unprecedented amounts of debris, and damaged ecosystems. Neighborhoods and industrial sites in greater New Orleans and surrounding areas were covered in mud once the floodwaters washed away.<sup>7</sup> The Natural Resource Defense Council performed multiple soil samples and found high levels of arsenic, lead, diesel fuel, and cancer-causing benzo(a)pyrene.<sup>8</sup> In many cases, these levels exceeded the soil guidelines of the Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality.<sup>9</sup> The floodwaters themselves were contaminated with toxic pollutants, heavy metals, pesticides, and raw sewage.<sup>10</sup> Six major oil spills resulted from Hurricane Katrina, and 7 million gallons of oil were released, totaling almost 60% of the Exxon Valdez oil spill in Prince William Sound.<sup>11</sup> Five Superfund<sup>12</sup> toxic waste sites were located within the flooded area.<sup>13</sup> And a total of 446 industrial facilities storing dangerous chemicals were flooded.<sup>14</sup>

The extreme amount of debris covering the flood waters resulted in an unprecedented debris removal project. Hurricane Katrina produced 22 million tons of debris and 42,000 tons of hazardous waste.<sup>15</sup> Much of the debris was soaked with petroleum and contained other highly-toxic chemicals that would release contaminants into the air if

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7. Gina M. Solomon & Miriam Rotkin-Ellman, *Contaminants in New Orleans Sediment: An Analysis of EPA Data*, NATURAL RESOURCE DEFENSE COUNCIL 3 (2006), <https://www.nrdc.org/sites/default/files/sedimentepa.pdf>.

8. *Id.*

9. *Id.* Some residential neighborhoods contained hot spots over a hundred times the normal cleanup levels.

10. Richard J. Lazarus, *Environmental Law After Katrina: Reforming Environmental Law by Reforming Environmental Lawmaking*, 81 TUL. L. REV. 1019, 1025 (2007).

11. Janell Smith & Rachel Spector, *Environmental Justice, Community Empowerment and the Role of Lawyers in Post-Katrina New Orleans*, 10 N.Y. CITY L. REV. 277, 282 (2006).

12. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is commonly known as Superfund. *Superfund: CERCLA Overview*, EPA, <https://www.epa.gov/superfund/superfund-cercla-overview> (last visited Oct. 8, 2019).

13. Smith & Spector, *supra* note 11, at 283.

14. *Id.*

15. Lazarus, *supra* note 10. To put this large amount of debris into perspective, the 9/11 World Trade Center attacks produced 1.5 million tons of debris. Julia C. Webb, Note, *Responsible Response: Do the Emergency and Major Disaster Exceptions to Federal Environmental Laws Make Sense from a Restoration and Mitigation Perspective?*, 31 WM. & MARY ENVTL. L. & POLY REV. 529, 545 (2007).

burned.<sup>16</sup> Close to 5 million gallons of household toxic waste were found in the debris, including toxic household cleaners, paint, mercury, and other heavy metals from refrigerators, microwaves, televisions, and computers.<sup>17</sup> Approximately 350,000 vehicles were destroyed and deserted leaving behind leaked oil, gasoline, and mercury.<sup>18</sup> After sorting through the debris, the remaining wood was ultimately burned using a method that limits, but does not completely eliminate, emissions.<sup>19</sup>

Another way Hurricane Katrina damaged the environment was by significantly altering the ecosystems surrounding New Orleans. Katrina ripped through shallow-shelf waters home to oyster reefs<sup>20</sup> and stripped thirty square miles of wetlands into open water in Breton Sound alone.<sup>21</sup> Saltwater from the surge mixed with sensitive freshwater ecosystems, completely altering the habitat for a number of bird and fish species.<sup>22</sup> The habitats of at least three endangered or threatened species were altered by the storm.<sup>23</sup> About 365,000 acres across sixteen wildlife refuges were damaged.<sup>24</sup> To relieve flooding, already-contaminated floodwaters were pumped into Lake Pontchartrain, resulting in damage to sensitive plants and wildlife.<sup>25</sup>

After Hurricane Katrina tore through New Orleans, various agencies invoked federal environmental exemptions. Clean Water Act (CWA) regulations were exempted that would have forbid dumping billions of gallons of the highly polluted water into Lake Pontchartrain.<sup>26</sup> Similarly, the Fish and Wildlife Service invoked the disaster exemption under the Endangered Species Act (ESA) allowing for any "take"<sup>27</sup> of a species during the restoration of damaged infrastructure.<sup>28</sup>

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16. Webb, *supra* note 15.

17. Katherine Hausrath, *Tough Love: Should We Analyze Federal Emergency Management Agency Disaster Planning Under the National Environmental Policy Act?*, 13 HASTINGS W.-NWJ. ENV'T'L. & POL'Y 161, 176 (2007).

18. *Id.*

19. *Id.*

20. Webb, *supra* note 15, at 547.

21. Lazarus, *supra* note 10.

22. Webb, *supra* note 15, at 547.

23. *Id.*

24. *Id.*

25. Lazarus, *supra* note 10.

26. Hausrath, *supra* note 17, at 177.

27. "The term 'take' means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." 16 U.S.C. § 1532(19) (2012).

28. *Id.* § 1536(p); Webb, *supra* note 15, at 548-49.

And the Army Corps of Engineers (ACOE) invoked the emergency exemption under the National Environmental Policy Act (NEPA) reducing the environmental study requirements for federal projects down to simple consultation with the Council on Environmental Quality (CEQ).<sup>29</sup>

### *B. Hurricane Harvey*

Hurricane Harvey slammed into the Texas coast on August 25, 2017 as a Category Four hurricane and lingered for more than four days, dropping fifty inches of rain in parts of Houston.<sup>30</sup> Houston is the petrochemical hub of America.<sup>31</sup> Around 500 chemical plants, 10 refineries, and 6,670 miles of oil, gas, and chemical pipelines call Houston home.<sup>32</sup> After Hurricane Harvey, over 100 toxic releases on land, water, and in the air were catalogued.<sup>33</sup> One oil spill alone at Magellan Midstream Partners tank farm released 460,000 gallons of gasoline less than a mile away from residential neighborhoods.<sup>34</sup> The floodwaters caused industrial toxic substances including benzene, butadiene, vinyl chloride, and other carcinogens to be released in neighborhoods and waterways.<sup>35</sup> The Arkema chemical plant explosion was one of the few publicized toxic disasters. Two explosions occurred at the Arkema chemical plant and burned for multiple days due to the combustible peroxides it housed.<sup>36</sup> Just days after Hurricane Harvey hit, Texas experienced its worst ozone pollution of the year.<sup>37</sup> Air monitoring

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29. Webb, *supra* note 15, at 549. The CEQ is an office in the White House that oversees NEPA and its implementation. J.B. RUHL, JOHN COPELAND NAGLE, JAMES SALZMAN & ALEXANDRA B. KLASS, *THE PRACTICE AND POLICY OF ENVIRONMENTAL LAW* 473 (4th ed. 2017).

30. Stephanie Glenn, *Summarizing Hurricane Harvey's Environmental Impacts in the Houston-Galveston Region*, HARC RESEARCH (Nov. 6, 2017), [http://www.harcresearch.org/feature/Summarizing\\_Hurricane\\_Harvey\\_Environmental\\_Impacts\\_Houston-Galveston\\_Region](http://www.harcresearch.org/feature/Summarizing_Hurricane_Harvey_Environmental_Impacts_Houston-Galveston_Region).

31. Jen Kirby, *The Environmental Fallout of Hurricane Harvey*, N.Y. MAG. (Sep. 1, 2017), <http://nymag.com/daily/intelligencer/2017/09/the-environmental-fallout-of-hurricane-harvey.html>.

32. Frank Bajak & Lise Olsen, *Hurricane Harvey's Toxic Impact Deeper than Public Told*, AP NEWS (Mar. 23, 2018), <https://apnews.com/e0ceae76d5894734b0041210a902218d>.

33. *Id.*

34. *Id.*

35. *Id.*

36. Kirby, *supra* note 31.

37. Bajak & Olsen, *supra* note 32.

showed more than three times the level of benzene for federal worker safety guidelines.<sup>38</sup>

Hurricane Harvey caused many other environmental harms beyond damage from industrial sites. Thirteen Superfund sites were flooded.<sup>39</sup> Eight hundred wastewater treatment facilities were damaged, which created fear of wastewater pollutants leaking.<sup>40</sup> Residents served by 166 water systems were under "boil-water orders" from the EPA.<sup>41</sup> Thousands of homes were flooded as well as cars and other structures, resulting in floodwaters contaminated with motor oil, sewage, and household chemicals, posing both a toxic and bacterial risk.<sup>42</sup>

Texas Governor Gregg Abbott's administration decreed that any storm-related pollution would be forgiven under the "act of God" defense.<sup>43</sup> Just days after this decree, many environmental regulations were suspended, including suspension of liability for unauthorized emissions for the remainder of the disaster declaration period.<sup>44</sup> Governor Abbott's disaster declaration also suspended many environmental reporting and record-keeping rules.<sup>45</sup>

It took over six months for the environmental impacts of Hurricane Harvey to come to light.<sup>46</sup> Of the dozens of toxic spills that occurred from Hurricane Harvey, regulators alerted the public of only two, already well-publicized, toxic disasters.<sup>47</sup> The EPA acting regional administrator, Samuel Coleman, described the immediate priority after Harvey as "addressing any environmental harms as quickly as possible as opposed to making announcements about what the problem was."<sup>48</sup> As a result, the supervising environmental attorney for Harris County in Houston stated, "[t]he public will probably never know the

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38. *Id.*

39. Arelis R. Hernandez, Katie Zezima & Joel Achenbach, *Texas Faces Environmental Concerns as Wastewater, Drinking Water Systems Compromised*, WASH. POST (Sep. 3, 2017), [https://www.washingtonpost.com/news/post-nation/wp/2017/09/03/trump-administration-wants-to-tie-harvey-recovery-aid-to-debt-ceiling-legislation/?noredirect=on&utm\\_term=.83a856ef16e0](https://www.washingtonpost.com/news/post-nation/wp/2017/09/03/trump-administration-wants-to-tie-harvey-recovery-aid-to-debt-ceiling-legislation/?noredirect=on&utm_term=.83a856ef16e0).

40. *Id.*

41. *Id.*

42. John Sharp, *Eye of the Storm: Report of the Governor's Commission to Rebuild Texas*, REBUILD TEXAS, 26 (2018) <https://www.rebuildtexas.today/wp-content/uploads/sites/52/2018/12/12-11-18-EYE-OF-THE-STORM-digital.pdf>.

43. Bajak & Olsen, *supra* note 32.

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

extent of what happened to the environment after Harvey."<sup>49</sup> Although the EPA performed water samples at industrial sites, it never disclosed the results and refused to discuss whom it was investigating as a result of the samples.<sup>50</sup> Local reporters attempted to cover environmental crises, but the quantity of spills made it impossible to document in real time.<sup>51</sup> Residents near the Magellan oil spill only learned of the disaster a week later through news reports. This left people "in a state of limbo of not knowing if they were exposed or not . . . ."<sup>52</sup>

Federal environmental exemptions after emergencies not only further deteriorate already vulnerable ecosystems, but also subject communities to environmental harms they are not properly made aware of. Environmental exemptions may need to be invoked in initial recovery efforts to focus on more pressing concerns of human safety, but communities should not be subject to unknown harms and risks because environmental exemptions were invoked. Procedural requirements must be put into place to allow transparency and information distribution detailing environmental exemptions that were invoked after a disaster and the resulting effects.

### III. FEDERAL ENVIRONMENTAL EXEMPTIONS

To prevent environmental laws from impeding disaster recovery, many federal environmental statutes and regulations contain exemptions for natural disasters or emergencies. These exemptions often suspend or completely waive compliance with the applicable environmental law after an emergency. Other statutes and regulations contain more specific requirements conditioning when environmental exemptions can be invoked and to what extent the exemption applies. Not only do federal environmental laws provide exemptions, but the EPA may issue its own waivers after an emergency. Congress has also exercised its legislative authority to suspend environmental laws for emergencies.<sup>53</sup> For purposes of this article, statutory and regulatory federal environmental exemptions will be the focus.

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49. *Id.*

50. *Id.*

51. *Id.*

52. *Id.* (Quoting Dr. Nicole Lurie who oversaw federal public health responses to Hurricane Sandy and the Deepwater Horizon Spill while working at the U.S. Department of Health and Human Services).

53. *See* Emergency Salvage Timber Sale Program, Pub. L. No. 104-19, 109 Stat. 240 (1995). Congress determined a health crisis existed in forests from the possibility of dead trees

Environmental exemptions after natural disasters or emergencies are necessary to quickly begin recovery efforts and ensure human safety. Although necessary, many of the exemptions are overly broad and provide little to no procedural requirements for invoking the exemption. Without such procedural requirements, environmental exemptions can be invoked by federal agencies without the public or other agencies knowing. By making information about exemptions invoked available and soliciting public comment after recovery efforts, details about the resulting effects on the environment can be distributed to communities and other government agencies. Public comments<sup>54</sup> can help guide agencies in ongoing recovery efforts and future recovery projects that would elicit similar environmental exemptions. A legal obligation for federal agencies to distribute this information will create more knowledge of the damaging effects of disasters and emergencies on the environment and how current environmental laws fail to fulfill their role after disasters because of exemptions.

This section outlines current federal environmental exemptions and demonstrates the need for stricter procedural requirements to invoke environmental exemptions. The most common environmental exemption for emergencies is a waiver of all or a portion of the provisions of the law, with few to no procedural requirements to obtain the exemption. Some statutory exemptions, however, do provide more stringent requirements to obtain exemptions in emergencies. To illustrate the various procedural requirements in emergency exemptions, the CWA, the NEPA, and the Safe Drinking Water Act will be of particular focus. These environmental exemptions are explained in order of most lenient to most strict in terms of procedural requirements.

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spurring forest fire, insect infestation, and disease. *Id.* at 241. To address this crisis, Congress passed the Emergency Salvage Timber Sale Program as an attachment to a rescission bill for quick passage. Trilby C.E. Dorn, Comment, *Logging Without Laws: The 1995 Salvage Logging Rider Radically Changes Policy and the Rule of Law in the Forests*, 9 TUL. ENVTL. L.J. 447, 448 (1996). This bill suspended environmental regulations for the Forest Service to expedite sales of salvage timber on national forest land during the emergency period. *Id.* Although the bill was enacted only to address the potential health crisis, it has been read by courts to allow for cutting of healthy forests that pose no health threat. *Id.*

54. Like soliciting comments on a draft Environmental Impact Statement (EIS) under NEPA, commentators would include federal agencies, state and local agencies, Indian tribes, and the public. *See* 40 C.F.R. § 1503.1 (2017).

*A. Common Federal Environment Exemption Elements*

A common characteristic among environmental exemptions is the duty to seek approval or the duty to consult before invoking an exemption. Other provisions in environmental exemptions that trigger a waiver of all or a portion of the statutory or regulatory requirements are to repair facilities and prevent future disasters, and activities deemed in the paramount interest of the United States or for national security. Another exemption found in federal environmental laws, the act of God or act of war defense, acts more like a blanket waiver because it fully exempts liability.

*1. Duty of approval and to consult*

The requirement to seek approval for invoking an environmental exemption is often found in federal environmental laws. The Coastal Zone Management Act (CZMA)<sup>55</sup> requires that the President give written request to the Secretary of Commerce to exempt activities by federal agencies under the Act.<sup>56</sup> Under the Wilderness Act,<sup>57</sup> actions in the event of a fire, insect infestation, or disease are subject to the Secretary of Agriculture's approval.<sup>58</sup>

Federal environmental exemptions may also require a federal agency to consult with another agency before invoking an exemption. For instance, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA)<sup>59</sup> requires that the Administrator of the EPA consult with the

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55. The CZMA was enacted in 1972 "to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations[.]" 16 U.S.C. § 1452(1) (2012). Congress found that coastal zones are fragile ecosystems home to rich resources essential to the well-being of society and are being damaged by demands of increased populations. *Id.* § 1451(a)-(e). The goal of the CZMA is to provide federal assistance for energy activity expansion, control pollution of coastal waters, and prepare for global warming sea-rise. *Id.* § 1451(j)-(l).

56. *Id.* § 1456(c)(1)(B).

57. The Wilderness Act was enacted in 1964 in response to growing population to ensure that settlement did not modify all lands in the United States and that future American people had "enduring resources of wilderness." *Id.* § 1131(a) (2012). The goal is to preserve areas "where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain." *Id.* § 1131(c).

58. *Id.* § 1133(d)(1).

59. FIFRA provides for federal regulation of pesticide distribution, sale, and use. ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/laws-regulations/summary-federal-insecticide-fungicide-and-rodenticide-act> (last visited Apr. 26, 2018). Before a pesticide may be registered under FIFRA, the applicant must show that using the pesticide according to specifications "will not generally cause unreasonable adverse effects on the environment." 7 U.S.C. § 136a(c)(5)(D) (2012).

Secretary of Agriculture and the relevant state governor.<sup>60</sup> Under the CEQ's exemption for NEPA,<sup>61</sup> if an emergency requires "action with significant environmental impact" without being able to comply with all NEPA requirements,<sup>62</sup> the federal agency can consult with the CEQ about alternative arrangements to control "the immediate impacts of the emergency."<sup>63</sup> The Ocean Dumping Act<sup>64</sup> requires the Administrator of the EPA to consult with the Department of State before issuing permits to dump industrial waste into the ocean.<sup>65</sup> The Administrator must determine that an emergency exists that "poses an unacceptable risk relating to human health and admits of no other feasible solution."<sup>66</sup> "Emergency" under the Act means "situations requiring action with a marked degree of urgency, but is not limited in its application to circumstances requiring immediate action."<sup>67</sup>

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60. *Id.* § 136p. Under FIFRA, consultation is required if the affected States request consultation to exempt an agency from provisions of the Act if emergency conditions exist. *Id.* FIFRA also allows for four types of exemptions under emergency conditions: specific exemptions, quarantine exemptions, public health exemptions, and crisis exemptions. 40 C.F.R. § 166.2 (2017). "Emergency condition means an urgent, non-routine situation that requires the use of a pesticide(s) and shall be deemed to exist when: (1) [n]o effective pesticides are available under the Act that have labeled uses registered for control of the pest under the conditions of the emergency; and (2) [n]o economically or environmentally feasible alternative practices which provide adequate control are available; and (3) [t]he situation: (i) [i]nvolves the introduction or dissemination of an invasive species or a pesticide new to or not theretofore known to be widely prevalent or distributed within or throughout the United States and its territories; or (ii) [w]ill present significant risks to human health; or (iii) [w]ill present significant risks to threatened or endangered species, beneficial organisms, or the environment; or (iv) [w]ill cause significant economic loss due to: (A) [a]n outbreak or an expected outbreak of a pest; or (B) [a] change in plant growth or development caused by unusual environmental conditions where such change can be rectified by the use of a pesticide(s)." *Id.* § 166.3.

61. NEPA was enacted in 1970 as the first major environmental statute. RUHL, NAGLE, SALZMAN & KLASS, *supra* note 29, at 472. The goal of NEPA is to educate decisionmakers by making them aware of environmental issues and helping agencies find means to mitigate environmental impacts. *Id.* at 473-74. NEPA also allows the public to be educated on necessary information to be able to contest and stall or block an agency action. *Id.* at 474.

62. NEPA requires agencies to evaluate environmental impacts of proposed projects and compare the impacts of reasonable alternatives. 40 C.F.R. § 1500.2(e) (2017). Federal agencies must create a detailed EIS for "every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment . . ." 42 U.S.C. § 4332(C) (2012).

63. 40 C.F.R. § 1506.11 (2017).

64. The Ocean Dumping Act was enacted in 1972 to address the dangers of unregulated dumping into ocean waters on "human health, welfare, and amenities, and the marine environment, ecological systems, and economic potentialities." 33 U.S.C. § 1401(a) (2012).

65. 40 C.F.R. § 220.3(c) (2017); 33 U.S.C. § 1412a(a) (2012). In some emergencies, the Administrator of the EPA does not have to consult with the Department of State. 40 C.F.R. § 220.3(c) (2017).

66. *Id.*; 33 U.S.C. § 1412a(a) (2012).

67. 40 C.F.R. § 220.3(c) (2017).

Other exemptions simply require notification that they are being invoked. The Resource Conservation and Recovery Act (RCRA)<sup>68</sup> requires the Administrator of the EPA to notify the affected states before taking action for imminent hazards "including, but not limited to, issuing such orders as may be necessary to protect public health and the environment."<sup>69</sup>

## 2. *Repair facilities and prevent future disasters*

A second characteristic among federal environmental exemptions is a waiver of environmental provisions when implementing projects to restore public facilities as they were before the disaster. The ESA,<sup>70</sup> for example, allows otherwise prohibited "takes"<sup>71</sup> of endangered or threatened species after major disasters when restoring facilities to the state before the damage from the disaster occurred.<sup>72</sup> The exemption allows the President to bypass the requirement that federal agency actions not jeopardize an endangered or threatened species' existence or destroy or adversely modify its critical habitat.<sup>73</sup> Essentially, the President can destroy endangered or threatened species after a disaster without it being considered a prohibited "taking"<sup>74</sup> of the species.<sup>75</sup> The President must determine both that the exemption is necessary to prevent another natural disaster and reduce potential human life loss and that the exemption involves an emergency situation which would not ordinarily allow such procedures to be followed.<sup>76</sup>

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68. RCRA amended the Solid Waste Disposal Act to fill the regulatory gap of both the disposal and treatment of hazardous waste. RUHL, NAGLE, SALZMAN & KLASS, *supra* note 29, at 351. Congress found that inadequate practices of waste disposal had created a greater amount of water and air pollution along with other environmental and human health problems. 42 U.S.C. § 6901(b)(2)-(3) (2012). RCRA's basic goals are to determine classes of waste under its authority, track hazardous waste from its creation to its disposal, establish standards for handling waste from its creation to its disposal, and provide for mandatory cleanup of polluted sites. RUHL, NAGLE, SALZMAN & KLASS, *supra* note 29, at 351.

69. 42 U.S.C. § 6973 (2012).

70. The ESA was enacted in 1973 to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved" and "to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. § 1531(b) (2012). Congress declared it a policy that all federal departments and agencies seek to conserve threatened and endangered species. *Id.* § 1531(c).

71. *See supra* text accompanying note 27.

72. 16 U.S.C. § 1536(p) (2012).

73. *Id.* § 1536(a)(2).

74. *See supra* text accompanying note 27.

75. 16 U.S.C. § 1536(o) (2012).

76. *Id.* § 1536(p).

Under the Disaster Relief Act, an action taken during a major disaster which could restore a facility to its condition prior to the disaster or emergency is not considered a "major Federal action significantly affecting the quality of the human environment" under NEPA.<sup>77</sup> "Emergency" is defined under the Disaster Relief Act as

any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States.<sup>78</sup>

"Major disaster" is defined under the Disaster Relief Act as

any natural catastrophe (including any hurricane, tornado, storm, high water, winddriven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this chapter to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby.<sup>79</sup>

Essentially, no procedural requirements such as an environmental assessment or impact statement or an issue of public notice for comment will be required under the Disaster Relief Act's exemption for NEPA if an emergency or major disaster exists.

### *3. Paramount interest of the United States and national security*

Other federal environmental exemptions are provided if a waiver of compliance with the provisions of an environmental law is found to be in the paramount interest of the United States or necessary for national security. The RCRA allows the President to exempt any waste

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77. 42 U.S.C. § 5159 (2012).

78. *Id.* § 5122(1).

79. *Id.* § 5122(2).

management facility of any department or agency within the executive branch from compliance if the President finds noncompliance to be in the paramount interest of the United States.<sup>80</sup> An exemption must not exceed one year, but if the President makes a new determination, additional exemptions may be granted for another year.<sup>81</sup> The CZMA allows the President to exempt activities by federal agencies that are inconsistent with a federally-approved State management program if the President finds such activities are in the paramount interest of the United States.<sup>82</sup> Furthermore, the ESA allows exemptions for "taking"<sup>83</sup> endangered or threatened species if the Secretary of Defense finds that an exemption is necessary for the national security of the United States.<sup>84</sup>

#### *4. Act of God and act of war*

Some statutes and regulations provide an exemption, or defense, from liability generally if the disaster was the result of an act of God or an act of war.<sup>85</sup> The CWA,<sup>86</sup> for example, provides an exemption for liability of discharges of oil or hazardous substances from a vessel if an owner or operator can prove that the discharge was caused by an act of God or an act of war.<sup>87</sup> The CWA defines an act of God as "an act

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80. *Id.* § 6961(a).

81. *Id.* Each January the President must report to Congress all exemptions granted during the past calendar year along with reasons for granting each exemption. *Id.*

82. 16 U.S.C. § 1456(c)(1)(B) (2012). After any appealable final judgement from a federal court or an applicable federal law provision that a federal agency's activity is not consistent with the federally approved State program for management, and the Secretary of Commerce has certified that mediation is not likely. *Id.* The State management program is a comprehensive statement prepared by coastal states that sets forth objectives to guide uses of the land and water within coastal zones. *Id.* § 1453(12). Congress found the key to protection of coastal zones lies in the states exercising authority and wanted to assist states in cooperating with federal and local government in developing both water and land-use programs for coastal zones. *Id.* § 1451(i). This plan includes laid out policies, methods, and processes for deciding water and land-use problems that are of more than local significance. *Id.*

83. *See supra* text accompanying note 27.

84. 16 U.S.C. § 1536(j) (2012).

85. Much like other federal environmental exemptions, the act of God and act of war defense acts as a blanket waiver. However, unlike federal emergency exemptions that waive all or a portion of the requirements under the environmental law, the act of God or act of war defense exempts a party from liability of the environmental harm.

86. The CWA was enacted in 1972 to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a) (2012). Upon its enactment, the goal of the CWA was to create fishable and swimmable waters by 1983 and completely eliminate pollutants in navigable waters by 1985. *Id.* § 1251(a)(1)-(2).

87. 33 U.S.C. § 1321(f)(1) (2012). "[I]n an amount not to exceed, in the case of an inland

occasioned by an unanticipated grave natural disaster."<sup>88</sup> The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)<sup>89</sup> provides exemptions for liability for persons who would otherwise be liable for the release of a hazardous substance if the resulting damage is from an act of God or war.<sup>90</sup> Similarly, under the Oil Pollution Act (OPA),<sup>91</sup> a responsible party will face no liability for removal costs if the party can establish that the discharge of oil and resulting damage was caused solely by an act of God or an act of war.<sup>92</sup> An act of God is defined under CERCLA and the OPA as "an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character the effects of which could not have been prevented or avoided by the exercise of due care or foresight."<sup>93</sup>

### B. Clean Water Act

The CWA provides a broad exemption for emergency actions. An emergency under the CWA is a situation "which would result in an unacceptable hazard to life or navigation, a significant loss of property, or an immediate and unforeseen significant economic hardship if corrective action is not taken within a time period less than the normal time needed under standard procedures."<sup>94</sup> The district engineer, upon

oil barge \$125 per gross ton of such barge, or \$125,000, whichever is greater, and in the case of any other vessel, \$150 per gross ton of such vessel (or, for a vessel carrying oil or hazardous substances as cargo, \$250,000), whichever is greater . . . ." *Id.*

88. *Id.* § 1321(a)(12). See Ralph M. Sugg, Note, *Blame it on the Rain? El Nino is No Excuse to Pollute*, 21 WHITTIER L. REV. 737 (2000).

89. CERCLA was enacted in 1980 to allow the government to recover the costs of cleanup from responsible parties who disposed of toxic waste. Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. No. 96-510, 94 Stat. 2767. The Hazardous Substance Response Trust Fund was created upon the enactment of CERCLA, also known as the "Superfund" statute, to provide funds for EPA response at contamination sites. RUHL, NAGLE, SALZMAN & KLASS, *supra* note 29, at 377.

90. 42 U.S.C. § 9607(b)(1)-(2) (2012). In emergency removal or remedial actions under CERCLA or in response actions to a release under the CWA that poses "an immediate and significant threat to human health and the environment," CERCLA waste can be transferred without following CERCLA requirements. 40 C.F.R. § 300.440(a)(2) (2017).

91. The OPA was enacted in 1990 to limit liability for damages from oil pollution and to establish a fund to pay the compensation for resulting damages. Oil Pollution Act of 1990, Pub. L. No. 101-380, 104 Stat. 484. The OPA was enacted from a need for quick and efficient cleanup processes to minimize the harm to "fisheries, wildlife and other natural resources . . . ." S. REP. NO. 101-94, at 2 (1989).

92. 33 U.S.C. § 2703(a) (2012).

93. *Id.* § 2701(1); 42 U.S.C. § 9601(1) (2012).

94. 33 C.F.R. § 335.7 (2017).

approval from the division engineer, can respond to emergencies on an expedited basis while complying with the CWA "to the maximum degree practicable."<sup>95</sup> If practicable, the district engineer must issue a public notice with a description of the emergency to the public and forward it to appropriate government agencies.<sup>96</sup> The district engineer should also prepare either an evaluation report under the Act or an environmental assessment if practicable in light of the emergency.<sup>97</sup> If a report or assessment is practicable and public comments are received from federal or state agencies that sufficiently show the operation must be modified, the district engineer should modify the operation to avoid or minimize environmental harms.<sup>98</sup> But if after receiving public comments the district engineer finds that the operation would require NEPA compliance, the engineer should coordinate with the division engineer and consult with the CEQ about complying with NEPA to the extent practicable in light of the emergency.<sup>99</sup>

Although the CWA lays out procedural requirements that must be followed to invoke an emergency exemption, the language is woolly and allows for blanket waivers of the provisions of the Act in an emergency. The statute attempts to require procedural safeguards such as public notice, preparing an environmental report or assessment, modifying the action based on comments received, and potentially consulting with the CEQ to comply with NEPA. Yet phrases such as "to the maximum degree practicable" and "practicable in view of the emergency situation" swallow these procedural requirements during an emergency. Although preparing environmental reports and giving notice for public comment is rarely practicable in an emergency, more procedural requirements can be implemented. This provision attempts to maintain procedural requirements in an emergency, but it is essentially a blanket waiver of compliance with the provisions of the Act.

### *C. National Environmental Policy Act*

The ACOE is provided an exemption under NEPA in emergencies. If acting in an emergency situation to "prevent or reduce imminent risk of life, health, property, or severe economic losses," district

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95. *Id.* § 337.7.

96. *Id.*

97. *Id.*

98. *Id.*

99. 33 C.F.R. § 337.7 (2017).

commanders may proceed without fulfilling the procedural requirements of NEPA.<sup>100</sup> When requesting to proceed with an action in an emergency, district commanders must consider environmental consequences and describe proposed documentation and reasons for excluding documentation.<sup>101</sup> If time permits, all NEPA documentation should be completed prior to the emergency action.<sup>102</sup> But this documentation can also be provided after the emergency action is complete.<sup>103</sup> If an emergency action is considered a major action with significant environmental impacts,<sup>104</sup> the action should be referred to the CEQ for consultation when possible.<sup>105</sup>

This NEPA exemption provided to the ACOE is less broad than the CWA exemption. Although broad language is still in this exemption such as "if time constraints render this practicable" and "when possible," the regulation calls for more stringent requirements. For instance, environmental consequences must be considered and proposed documentation must be described with reasons for why documents were excluded. Even more unique, however, is the option to submit NEPA documentation<sup>106</sup> after the emergency action is complete if time did not permit documentation prior to the emergency action. Although this is not a requirement, it is a step in the right direction of enforcing procedural requirements in exemption situations to ensure that the purpose of environmental laws is upheld in emergencies.

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100. 33 C.F.R. § 230.8 (2017). *See supra* text accompanying note 62.

101. 33 C.F.R. § 230.8 (2017).

102. *Id.*

103. *Id.*

104. *See supra* text accompanying note 62.

105. 33 C.F.R. § 230.8 (2017).

106. "[A]ll agencies of the Federal Government shall . . . include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on (i) the environmental impact of the proposed action, (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented, (iii) alternatives to the proposed action, (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented." 42 U.S.C. § 4332(c) (2012).

*D. Safe Drinking Water Act*

The Safe Drinking Water Act (SDWA)<sup>107</sup> allows for exemptions when there is an urgent threat to public health.<sup>108</sup> To determine an urgent threat to public health, the Administrator of the EPA must consult with the Secretary of Health and Human Services and provide written response to any comments from the Secretary.<sup>109</sup> The Administrator may "promulgate an interim national primary drinking water regulation for a contaminant" without determining and publishing a required health risk reduction analysis and a cost analysis.<sup>110</sup> Required analyses waived from the emergency exemption must be published within three years of invoking the exemption to promulgate an interim emergency regulation.<sup>111</sup> If the regulation must be revised, it must be done no later than five years after the regulation was promulgated.<sup>112</sup>

The SDWA is unique compared to other environmental laws in that it allows for promulgation of an emergency interim regulation to address the urgent threat to public health.<sup>113</sup> Unlike any other environmental exemption, the SDWA calls for analyses that would have been required if a regulation were promulgated in non-emergency circumstances to be published within three years of the emergency promulgation. This published assessment after the fact allows for revision so that the emergency promulgation can be properly assessed and re-promulgated if necessary.

Currently, federal environmental exemptions do not provide enough procedural guidance and transparency. More procedural requirements after exemptions are invoked must be put in place. Procedural requirements will allow for environmental exemptions to be invoked during recovery efforts to more quickly help victims, while also

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107. The SDWA was enacted in 1974 to assure that public water supply systems meet minimum standards to protect the public health. H.R. REP. NO. 93-1185, at 6454 (1974). The Act allows EPA to regulate contamination levels for all public drinking water systems. *Id.* at 6454-55.

108. 42 U.S.C. § 300g-1(b)(1)(D) (2012).

109. *Id.*

110. *Id.*

111. *Id.*

112. *Id.*

113. Different from other environmental exemptions, this exemption would often be invoked if a new contaminant is introduced that requires urgent, stricter regulation for human safety rather than less strict regulation for recovery efforts. The exemption is still analyzed in this paper, however, because the statute falls under the typical framework of an environmental exemption invoked due to an emergency condition.

ensuring a long-term focus on environmental recovery. This long-term focus will ultimately help ecosystems within the environment better recover and be more resilient against future disasters.

#### IV. THE CASE FOR ECOSYSTEM RESILIENCE

The current focus after natural disasters or emergency conditions is a short-term approach to rebuild and recover communities quickly. Invoking environmental exemptions after disasters for short-term recovery creates further long-term damage to ecosystems vital to future disaster mitigation. The focus after a natural disaster or emergency should instead be on rebuilding vulnerable environments and promoting ecosystem resilience to prepare for future disasters.<sup>114</sup> This long-term approach will result in stronger ecosystems that can better help mitigate harms from future disasters and protect communities.

##### *A. Short-Term Focused Recovery*

The initial response after a natural disaster or emergency is to begin recovery efforts immediately and complete rebuilding projects as quickly as possible. This immediacy often spurs rash decisions to achieve timely results. Hurricane Katrina, for instance, was seen by some as a chance to weaken environmental laws.<sup>115</sup> Within weeks of Hurricane Katrina's destruction, a bill was proposed in the Senate to allow the Administrator of the EPA to waive or modify any environmental regulation under the EPA's jurisdiction. Just a few days later, two more bills were introduced in the Senate, collectively called the Louisiana Katrina Reconstruction Act, that would authorize the President to issue emergency permits for any recovery project for two years after Hurricane Katrina.

Senate Bill 1711 was proposed a little more than three weeks after Hurricane Katrina hit New Orleans. The bill would have authorized the Administrator of the EPA and the Governor of any affected State to consult and ultimately modify or exempt any regulation under the jurisdiction of the EPA for up to 120 days, and extend exemptions of environmental laws for up to eighteen months.<sup>116</sup> The Administrator

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114. See generally Robin Kundis Craig, *Legal Remedies for Deep Marine Oil Spills and Long-Term Ecological Resilience: A Match Made in Hell*, 2011 BYU L. REV. 1863, 1866 (2011).

115. Oliver A. Houck, *Retaking the Exam: How Environmental Law Failed New Orleans and the Gulf Coast South and How It Might Yet Succeed*, 81 TUL. L. REV. 1059, 1062 (2007).

116. A bill to allow the Administrator of the Environmental Protection Agency to waive

needed only determine that the exemption or modification was necessary for timely response to damage from Katrina and was in the public interest.<sup>117</sup> Moreover, the bill attempted to use Katrina as an experiment for future exemptions. The bill proposed that one year after its enactment, the Administrator submit a report on statutes or regulations that delayed recovery efforts and include recommendations to expedite recovery efforts through more federal environmental exemptions for future natural disasters.<sup>118</sup>

Only a few days after Senate Bill 1711 was proposed, two Louisiana Senators introduced similar bills, Senate Bill 1765 and Senate Bill 1766.<sup>119</sup> Collectively called the Louisiana Katrina Reconstruction Act, the bills would have authorized the President to issue emergency permits for any project relating to recovery or reconstruction for two years after Hurricane Katrina so long as the President deemed the projects "to be in the best interest of the United States."<sup>120</sup> Any state or local government and any private entity carrying out a project for an agency could submit an application to the President for an emergency permit.<sup>121</sup> Even more concerning, if the President failed to make a determination within thirty days after receiving the emergency permit application, the application would be considered approved.<sup>122</sup> Any project that received an emergency permit by the President, or approval by default, would be automatically deemed "in compliance with any applicable Federal law."<sup>123</sup> The only requirement of the lead agency of the project would be to notify the head of any other federal agency that "administers a law or regulation applicable to the project."<sup>124</sup> In other words, the lead project agency would notify other agencies of their laws and regulations the lead agency would essentially be ignoring.

Fortunately, none of these bills passed, but this is not to say that similar bills will never be presented after future disasters. To prevent

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or modify the application of certain requirements, S. 1711, 109th Cong. § 1(a)(1), (b)(2) (2005).

117. *Id.* § 1(a)(1)(A)-(B).

118. *Id.* § 1(c).

119. Webb, *supra* note 15, at 553.

120. Louisiana Katrina Reconstruction Act, S. 1765, 109th Cong. § 502(a)(1) (2005).

121. *Id.* § 502(a)(2)(A)-(B).

122. *Id.* § 502(a)(2)(c)(i)-(ii).

123. *Id.* § 502(a)(3).

124. *Id.* § 502(a)(4). These notices would then be published in the Federal Register with a description of the basis for which the permit was granted. *Id.* § 502(b). The President would give notice to Congress of any waivers granted. *Id.* § 651.

further weakening of federal environmental laws after a natural disaster or emergency, procedural requirements must be in place for when environmental exemptions are invoked. Procedural requirements focused on distributing information to the public about environmental exemptions that were invoked and asking for public input is a more long-term focused approach to facilitate recovery after a natural disaster or emergency. Such procedural requirements will better protect damaged ecosystems. This protection will allow vulnerable ecosystems to recover and ultimately become more resilient to mitigate the effects of future natural disasters and protect communities.

### *B. Long-Term Focused Resilience*

A long-term focus after natural disasters or emergency conditions will ultimately reap more rewards in terms of mitigating harms from future disasters. Ecosystem services are the naturally occurring processes that help sustain a healthy environment for human survival. A result of healthy ecosystems is green infrastructure, which naturally absorbs the harmful impacts of disasters. Focusing on preserving strong ecosystems, in turn, makes communities more resilient to future disasters.

#### *1. Ecosystem services*

Ecosystem services are the species and natural processes within an ecosystem that help sustain human life.<sup>125</sup> "[W]etlands, hillsides, shorelines, floodplains, riparian areas, forests, and habitats can provide important and cost-effective natural services and benefits . . . ."<sup>126</sup> But because ecosystem services have no market value, they are often ignored or undervalued.<sup>127</sup>

Environmental disasters spur tremendous ecological change. If an ecological system is changed too much, it can pass a threshold where it behaves in a different way and presents changed feedback.<sup>128</sup> To illustrate this change, more than twenty years after the Exxon Valdez oil spill, the National Oceanic and Atmospheric Administration found pockets of crude oil in the Prince William Sound and evidence that

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125. Hirokawa, *supra* note 1, at 543.

126. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 411.

127. *Id.*

128. Craig, *supra* note 114, at 1893.

damage from the oil spill was still occurring.<sup>129</sup> Deeply-penetrated oil was still leaching from beaches, intertidal animals were still contaminated with oil, and rocks stripped of heavy plant life were still barren.<sup>130</sup>

Greater awareness of the environmental harms caused by invoking environmental exemptions after a natural disaster or emergency will allow for better identification of damaged ecosystem services. This identification can promote proper repair of damaged ecosystems before their functioning is irreversibly changed. Protecting ecosystem services will strengthen the ability of the natural environment to act as a buffer against future disasters and emergencies.

## 2. *Green infrastructure*

Often the most efficient way to reduce damage from natural disasters is to preserve the health and functioning of surrounding ecosystems.<sup>131</sup> A product of preserving resilient ecosystems is healthy green infrastructure. Green infrastructure is the natural ecological features that act as a protective buffer against natural disasters.<sup>132</sup> For example, wetlands can weaken storm surge by absorbing flood waters.<sup>133</sup>

Replacing green infrastructure with man-made construction to spur economic development only exacerbates the harm natural disasters cause. The risk of flooding increases because water is being squeezed into less space without wetlands and other natural floodways to absorb the impact.<sup>134</sup> For every 2.7 miles of coastal wetland destroyed, storm surge is increased by one foot.<sup>135</sup> Louisiana's coast, for example, is a "vast matrix" of navigational canals for oil-rig access consisting of large channels and thousands of access canals for navigation.<sup>136</sup> When Hurricane Katrina hit, the flooding flowed through the Mississippi River-Gulf Outlet (MRGO) Canal, where fifty miles of marsh and cypress swamps were missing as a result of the MRGO's

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129. *Id.* at 1888.

130. *Id.* at 1889.

131. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 411.

132. *Id.* at 65 (citing ROBERT R.M. VERCHICK, *FACING CATASTROPHE: ENVIRONMENTAL ACTION FOR A POST-KATRINA WORLD* (2010)).

133. *Id.*

134. Lazarus, *supra* note 10, at 1027.

135. Daniel Farber, *Symposium Introduction: Navigating the Intersection of Environmental Law and Disaster Law*, 2011 *BYU L. REV.* 1783, 1800 (2011).

136. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 66 (quoting VERCHICK, *supra* note 132).

construction.<sup>137</sup> The MRGO created a funnel, sometimes called a hurricane highway,<sup>138</sup> for Katrina to flow up the canal and straight into the city.<sup>139</sup>

When water flows are cut off by man-made structures, green infrastructure is starved of nutrients.<sup>140</sup> The Mississippi River, for instance, used to deliver 400 million tons of sediment to the Mississippi Delta, which naturally created new land as it deposited on Louisiana's coast.<sup>141</sup> Human-built barriers have since cut off nearly 70% of the supply of sediment, causing the naturally occurring land mass to sink and ultimately die.<sup>142</sup> Economic development of wetlands has largely resulted in the disappearance of 1 million acres of wetlands between 1930 and 2005.<sup>143</sup> By the time Hurricane Katrina hit, Louisiana was losing wetlands at a rate of a football field every thirty-eight minutes.<sup>144</sup>

Rather than try to reduce wetland development and allow nature to have its space, wetland loss is exacerbated to reap economic profit, and constructed levees are relied on in their place.<sup>145</sup> Levees are created to block water by creating a wall that has a stopping point, while coastal marsh and wetlands have the ability to absorb the impact of floodwaters.<sup>146</sup> During the oil and gas boom, the ACOE was presented with 2,500 CWA 404 permit applications.<sup>147</sup> Over a two-year period, the ACOE only denied four applications.<sup>148</sup> At this time, the national average of denied permits was a mere 2%.<sup>149</sup> Yet in New Orleans, this

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137. D'Ann R. Penner, *Reversing Coastal Land Loss: Economic, Legal, and Policy Considerations*, 61 LOY. L. REV. 525, 528 (2015).

138. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 66 (quoting VERCHICK, *supra* note 132).

139. Houck, *supra* note 115, at 1064.

140. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 66 (quoting VERCHICK, *supra* note 132).

141. Lazarus, *supra* note 10, at 1026.

142. *Id.*

143. *Id.*

144. *Id.*

145. *Id.* at 1037.

146. *Id.* at 1033.

147. Houck, *supra* note 115, at 1071. Section 404 of the CWA regulates "the discharge of dredged or fill material into waters of the United States, including wetlands." ENVIRONMENTAL PROTECTION AGENCY, <https://www.epa.gov/cwa-404/section-404-permit-program> (last visited Apr. 26, 2018).

148. *Id.*

149. *Id.*

average was even lower at 0.10%.<sup>150</sup> Calculations of the benefits of wetlands to the surrounding ecosystem paled in comparison to economic profit of developing the marshland in New Orleans.<sup>151</sup> This was all brought into perspective when Hurricane Katrina hit. New Orleans, Plaquemines, Terrebonne, St. Bernard Parish, and other parishes were hit hard from waves that would have been absorbed by coastal marsh a century before.<sup>152</sup> Levees most severely damaged and topped by the hurricane were located adjacent to former swamps and prairies that had since been turned into open water.<sup>153</sup> "Louisiana had permitted its own hurricane destruction."<sup>154</sup>

Greater procedural requirements for invoking environmental exemptions can promote better understanding of how green infrastructure was compromised as a result of invoking the exemptions. This knowledge, in turn, can allow for measures to be implemented to mitigate further deterioration of green infrastructure. Protecting green infrastructure will provide communities stronger natural buffers against future disasters once they inevitably return to and rebuild their ravaged communities.

### *3. Community rebuilding*

"Today, two important demographic trends in the United States are putting more people and property in harm's way: (1) the increasing concentration of population within cities and (2) the choice of many to live in areas that are particularly prone to natural disasters."<sup>155</sup> Demographic trends show that populations are increasingly concentrated in disaster-prone areas.<sup>156</sup> This trend stems partly from historic reasons for settling next to resources such as rivers, oceans, and mountains.<sup>157</sup> Because many cities were settled years ago in vulnerable areas, they often suffer from disasters, and when the inevitable disaster does occur, these cities are much more likely to rebuild than to relocate.<sup>158</sup> For instance, the number and the strength of hurricanes is increasing in

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150. *Id.*

151. *Id.* at 1072.

152. *Id.* at 1073.

153. *Id.*

154. *Id.*

155. FARBER, CHEN, VERCHICK & SUN, *supra* note 3, at 26.

156. *Id.*

157. *Id.*

158. *Id.* at 27.

the Gulf Coast, yet after Hurricane Katrina hit, both Mississippi and Grand Isle, Louisiana experienced a building-boom on their beaches.<sup>159</sup>

Regardless of whether it is the safest or most economically viable solution, communities come back and rebuild after disasters, and environmental laws must be strong enough to support healthy communities once they return. Lack of environmental protection after disaster only exacerbates the trauma and burdens already faced by the affected communities. Communities have a right to information about the federal environmental exemptions invoked after a disaster or emergency and the environmental harms that have occurred or may occur in the future due to the exemptions. Community members should also have the opportunity to participate in commenting on the information provided about exemptions invoked in their community. This will allow local citizens and other government agencies to give input on pending recovery efforts and suggest changes in environmental recovery efforts for future disasters. By placing procedural requirements on federal agencies to provide information on environmental exemptions invoked after a disaster, community members can begin to better understand the need for a more long-term view of disaster recovery and the role of ecosystem resilience in community rebuilding.

Protecting valuable ecosystem services strengthens the ability of the environment to utilize green infrastructure as a natural buffer against disasters, thereby protecting communities in the path of destruction. Implementing stricter procedural requirements to provide reports of environmental exemptions invoked after a natural disaster or emergency condition and submitting these reports for public comment will promote information and idea-sharing for more successful environmental recovery. Stronger ecosystems will ultimately create stronger communities to brave the storm.

## V. CONCLUSION

Stricter procedural requirements should be in place for federal environmental exemptions to be invoked. Environmental exemptions for natural disasters and emergency conditions should always require the appropriate federal agency to submit a report within a specified period of time from when the exemptions were invoked. These reports should detail the exemptions invoked, why the exemptions were granted, what

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159. Houck, *supra* note 115, at 1075-76.

environmental harms resulted from the exemptions, and what potential environmental harms will continue to result from the exemptions. These reports should be open for public comment to assist the appropriate federal agency in proceeding with disaster recovery efforts. Public comment will also create transparency surrounding environmental exemptions in natural disasters and emergencies, leaving room for a push towards ecosystem resilience to help mitigate future harm from disaster. Nature should be something we protect which in turn protects us, not something we try to defend ourselves from.<sup>160</sup>

*Morgan Drake\**

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160. *Id.* at 1079.

\* J.D., April 2019, J. Reuben Clark Law School, Brigham Young University. Special thanks to Professor Lisa Grow Sun for her guidance on this Note.

