

NOTES

A New Path to Climate Justice: Adaptation Suits Against Private Entities

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ABSTRACT

Climate change is here, and its impacts will only grow more severe in the coming years. As society and governments continue to pursue “mitigation” efforts to curb emissions of planet-warming gases, past emissions have already locked in a certain level of warming. Especially for countries with heavily populated coastlines, like the United States, warming will bring dangerous and costly consequences—such as sea level rise, stronger and more frequent storms, increased flooding, and more. To adequately prepare for these impacts, society needs to accelerate investments in “adaptation” measures—i.e., actions that reduce our vulnerability to anticipated climate change impacts, like elevating homes or fortifying coastal developments.

In recent years, litigators have begun using the courts as a lever to achieve more effective adaptation, often by suing governmental entities to improve their adaptation planning. But in Fall 2016, Conservation Law Foundation broke new ground by suing ExxonMobil for failing to address known climate impacts likely to affect its riverfront oil distribution terminal in Everett, Massachusetts. This suit is novel in that it seeks to compel a private entity to implement more stringent adaptation measures to better protect nearby areas.

This Note argues that climate litigators should learn from this innovative case and the judicial reaction to it, and then they should put those lessons into action by bringing more suits to compel private adaptation. After an introduction offering background on the case and explaining why it is groundbreaking, Part II provides several justifications for pursuing further private adaptation litigation, not the least of which is that private adaptation suits can target

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facilities near communities already suffering disproportionately from environmental harms and risks. Part III then delves into and analyzes the allegations and arguments at play in Conservation Law Foundation's suit.

TABLE OF CONTENTS

I.	Introduction: Conservation Law Foundation's Suit is Groundbreaking.	323
II.	The Time is Ripe for Adaptation Litigation Against Private Actors	327
	A. Private Adaptation Can Severely Reduce the Costs of Disaster Relief	327
	B. The Threat of Private Adaptation Litigation Can Help Drive More Adaptation	328
	C. Private Adaptation Litigation Can Advance Climate Justice	329
	D. Flexibility in Terms of the Kinds of Parties	330
	E. Private Adaptation Suits Can Shed Light on the Challenge of Using Old Laws to Solve New Problems.	330
	1. Review of Scholarship Addressing the Mismatch Between Environmental Statutes and Environmental Problems	331
	2. What Scholars and Practitioners Can Learn from <i>CLF v.</i> <i>ExxonMobil</i>	332
	F. The Pragmatic Argument for Private Adaptation Litigation	333
III.	Analysis of <i>CLF v. ExxonMobil</i>	334
	A. Background: Procedural History and Key Facts	334
	1. Procedural History	334
	2. Key Facts	335
	B. Climate Risks and ExxonMobil's Alleged Deception	336
	C. Standing	337
	1. Standing Requirements	338
	2. CLF's Standing Under the Resource Conservation and Recovery Act.	338
	3. CLF's Standing Under the Clean Water Act.	339
	4. Redressability for the Claims Under both RCRA and the CWA	340
	5. District Court Holdings on Standing	341
	D. Resource Conservation and Recovery Act	342
	1. Background	342
	2. CLF's Claim	343
	3. ExxonMobil's Response	344
	4. CLF's Rebuttal and Other Arguments	344
	E. Clean Water Act	345
	1. Background	345
	2. CLF's Claims.	346
	3. ExxonMobil's Response	348
	4. CLF's Rebuttal and Other Arguments	349
	5. Bringing Home the Importance of CLF's Novel Claims	350
	F. CLF's Requested Relief: Adequate Adaptation at Everett Terminal.	351
	1. Possible Challenges to CLF's Requested Injunctions	352

IV. Conclusion 353

I. INTRODUCTION: CONSERVATION LAW FOUNDATION’S SUIT IS GROUNDBREAKING

*Folks like myself grew up in Chelsea not necessarily knowing that we had connections to the water, because our entire waterfront is lined by industries or uses that block people’s access to the river.*¹

Those are the words of Roseann Bongiovanni, a native of Chelsea, Massachusetts who has worked on environmental justice for more than twenty years.² One of the industrial uses she mentioned is the storage and distribution of petroleum products at a terminal owned by ExxonMobil. The terminal is in Everett, Massachusetts, just upstream from Chelsea along the Mystic River, which flows to Boston a few miles to the south.

The Everett terminal threatens both the Mystic River and its tributary, the Island End River, which separates Everett and Chelsea. After a strong storm in 2010, the terminal’s water treatment system failed, causing untreated pollutants, including carcinogens, to flow directly into the Island End River.³

Bongiovanni’s concerns about similar contamination in the future led her to enter an affidavit in 2016 in a trailblazing lawsuit targeting the terminal.⁴ The Boston-based Conservation Law Foundation (CLF) brought the suit,⁵ which seeks to ensure that ExxonMobil will protect the environment and communities around its terminal from known climate change impacts, like stronger storms, rising sea levels, and flooding, all of which could lead to more spills like the one in 2010.⁶ CLF wants a court to make ExxonMobil fortify its terminal to withstand those expected impacts—i.e., to “adapt” the terminal to climate change.

1. Conservation Law Foundation, *Voices of the Mystic River: Industry Impacts with Roseann Bongiovanni*, YOUTUBE (June 16, 2016), <https://www.youtube.com/watch?v=zMTCdf8J7C4>.

2. *Id.*

3. Compl. for Declaratory and Injunctive Relief and Civil Penalties, Case 1:16-CV-11950, ECF No. 1, ¶ 79 (Sept. 29, 2016), <http://columbiaclimatelaw.com/files/2016/12/2016-09-29-Dkt-1-CLF-Complaint.pdf> [hereinafter Compl.]; see also Chris Sweeney, *A Tale of Two Rivers*, BOS. MAGAZINE (October 2016), <http://www.bostonmagazine.com/news/article/2016/10/09/tale-two-rivers-charles-mystic/3>.

4. Mem. of Law in Supp. of Pl.’s Opp’n to Defs.’ Mot. to Dismiss, Case 1:16-C-11950, ECF No. 20, at 8 (Dec. 20, 2016) [hereinafter Mem. CLF]; see also Ex. C, ECF No. 21-3 (Dec. 20, 2016) (Bongiovanni’s affidavit).

5. Conservation Law Foundation v. ExxonMobil, Case 1:16-cv-11950 (D. Mass. 2016). When this Note went to print, CLF’s case was still in the United States District Court for the District of Massachusetts. In December 2016, ExxonMobil filed a motion to dismiss, which the court partially denied in September 2017. Since then, the parties have filed additional documents, including an amended complaint from CLF and a motion to dismiss the amended complaint by ExxonMobil. See *infra*, Part III; see also Stephanie Ebbert, *Thinking Globally, Suing Locally: Chelsea Activists Join Fight Against Exxon Mobil*, THE BOS. GLOBE (Jan. 3, 2017), <https://www.bostonglobe.com/metro/2017/01/02/thinking-globally-suing-locally/5RnNjX9935lpRRYZckP2YJ/story.html>.

6. Compl., *supra* note 3, ¶¶ 10, 169. The scientific consensus on human-induced climate change is robust. See, e.g., J. Wuebbles et al., *Executive Summary of the Climate Science Special Report*, FOURTH NAT’L CLIMATE ASSESSMENT, Volume I, 2017 at 1 (“[B]ased on extensive evidence, [it] is extremely

In the context of climate change, “adaptation” refers to activities like hardening physical structures or elevating homes to reduce vulnerability to anticipated climate change impacts such as rising sea levels and stronger storms.⁷ By contrast, “mitigation” means efforts to reduce emissions of the planet-warming gases that cause climate change in the first place (for example, switching to non-emitting forms of energy generation, like solar or wind power).⁸ Although climate litigators—and the climate change movement as a whole—initially focused on mitigation, adaptation has started to share the spotlight in recent years.⁹

Exemplifying that trend, CLF’s lawsuit breaks new ground by seeking to compel a private entity to adapt to climate change.¹⁰ Few suits before CLF’s had sought adaptation, and most of the defendants in those cases were government entities.¹¹ The novelty of CLF’s case underscores the fact that climate change

likely that human activities, especially emissions of greenhouse gases, are the dominant cause of the observed warming since the mid-20th century”); *Mass. v. EPA*, 549 U.S. 497, 521 (2007) (“The harms associated with climate change are serious and well recognized”); Shannon M. Roesler, *Evaluating Corporate Speech About Science*, 106 GEO. L. J. 447, 453–57 (2018) (providing an overview of the scientific consensus on climate change).

7. See Michael B. Gerrard, *Introduction and Overview*, in *THE LAW OF ADAPTATION TO CLIMATE CHANGE*, 3 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012); see also *Glossary*, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, http://www.ipcc.ch/publications_and_data/ar4/wg3/en/annex1-englossary-a-d.html (last visited Feb. 27, 2018).

8. See Gerrard, *supra* note 7, at 3–4.

9. See James E. Parker-Flynn, *The Intersection of Mitigation and Adaptation in Climate Law and Policy*, ENVIRONS ENVTL. L. & POL’Y J., 1, 4 (Fall 2014) (“For many years, climate change literature and policy effectively ignored adaptation, as many scholars and politicians worried that focus on adaptation might stymie mitigation efforts. In recent years, however, scholars have recognized the need for adaptation regardless of mitigation, and the legal and scientific literature on adaptation has expanded tremendously.”); Janet E. Milne, *Storms Ahead: Climate Change Adaptation Calls for Resilient Funding*, 39 VT. L. REV. 819, 819 (2015) (“The challenges of reducing greenhouse gas emissions [i.e., mitigation] have dominated international negotiations and national debates about climate change, often leaving the issue of adaptation to climate change in the shadows.”).

10. See, e.g., Michael Burger & Justin Gundlach, *The Status of Climate Change Litigation*, U.N. ENV’T PROGRAMME & SABIN CTR. FOR CLIMATE CHANGE LAW AT COLUMBIA UNIV. 23 (May 2017), <http://columbiaclimate.com/files/2017/05/Burger-Gundlach-2017-05-UN-Envl-CC-Litigation.pdf> (describing *CLF v. ExxonMobil* as a “national and international test case for the theory that plaintiffs can prevail on claims arising from the threat of potential injury attributable to a failure to adapt to climate change”); Natasha Geiling, *Exxon Faces a First-of-its-Kind Lawsuit Over Climate Deception*, THINKPROGRESS.ORG (Sept. 29, 2016), <https://thinkprogress.org/exxon-water-lawsuit-b36335e4e093>; Benjamin Hulac, *Exxon Suit Opens a New Front in the Climate Change Fight*, E&E NEWS (Oct. 3, 2016), <https://www.eenews.net/stories/1060043740>.

11. See Burger & Gundlach, *supra* note 10, at 14 (noting that, even internationally, “governments are almost always the defendants in climate change cases”); David Markell & J. B. Ruhl, *An Empirical Survey of Climate Change Litigation in the United States*, 40 ENVTL. L. REP. 10644, 10647 (2010) (observing that in 2010, adaptation “was not on the litigation radar screen”); see generally Jacqueline Peel & Hari M. Osofsky, *Sue to Adapt?*, 99 MINN. L. REV. 2177, 2181 (2015) (providing “a much-needed analysis of the new phenomenon of adaptation planning suits in the United States”). To learn more about state adaptation plans, see *State and Local Adaptation Plans*, GEO. CLIMATE CENTER, <http://www.georgetownclimate.org/adaptation/plans.html> (last visited Feb. 25, 2018).

litigation is a relatively young¹² but “quickly evolving”¹³ field. Indeed, past suits have already covered a broad variety of legal theories, types of defendants, and desired outcomes.¹⁴

CLF’s innovative claim is that ExxonMobil’s failure to adapt to known climate risks violates two 1970’s-era pollution control statutes, the Clean Water Act (CWA)¹⁵ and the Resource Conservation and Recovery Act (RCRA).¹⁶ Those statutes may be decades old, but CLF is using them in a new way. Violations of those laws, CLF argues, authorize a federal district court to require ExxonMobil to adequately prepare for anticipated climate change impacts.¹⁷

A victory for CLF in this case “would create a blueprint for others to follow, identifying facilities where statutory violations can be used as leverage to compel adaptation to risks arising from climate change impacts”:¹⁸

Because coastal terminals like the one in Everett are a commonplace, and indispensable for the distribution of petroleum products and natural gas, such a blueprint would be highly significant and almost certainly generative of a small wave of litigation. Furthermore, because private facility owners—unlike governments—lack the shield of sovereign immunity, fewer legal options would help them to avoid investing in adaptation measures.¹⁹

12. See Markell & Ruhl, *supra* note 11, at 10647 (“The use of the courts to raise climate change issues really gained steam in 2006; before that year, climate change litigation was quite rare”).

13. Sean J. Wright, *Shifting Tides: Moving Climate Change Litigation Beyond Business as Usual*, 64 FLA. L. REV. F. 71, 71 (2012).

14. See Burger & Gundlach, *supra* note 10, at 10 (counting 654 climate change suits filed to date in the United States); *U.S. Climate Change Litigation*, <http://climatecasechart.com> (a searchable database managed collaboratively by Columbia Law School’s Sabin Center for Climate Change Law and Arnold & Porter Kaye Scholer LLP breaking down all known climate cases by the following categories: federal statutory claims, constitutional claims, state law claims, common law claims, public trust claims, securities and financial regulation, trade agreements, adaptation, and climate change protesters and scientists); Dena P. Adler, *U.S. Climate Change Litigation in the Age of Trump: Year One*, SABIN CENTER FOR CLIMATE CHANGE LAW (2018), <http://columbiaclimate.com/files/2018/02/Adler-2018-02-U.S.-Climate-Change-Litigation-in-the-Age-of-Trump-Year-One.pdf> (“categorizing and reviewing [eighty-two] climate change cases [defined as cases that raise climate change as an issue of fact or law] filed during 2017”).

15. 33 U.S.C. §§ 1251-1387 (2012).

16. 42 U.S.C. §§ 6901-92k (2012).

17. See Compl., *supra* note 3, ¶¶ 295(a)–(b). The “relief requested” section of CLF’s complaint does not spell out exactly what adaptation measures CLF wants the court to order. But other sections of the complaint articulate appropriate adaptation techniques for the Everett terminal. See *infra*, Part III.F. About a year after suing ExxonMobil, CLF filed a similar suit against Shell over its alleged failure to prepare a terminal in Providence, Rhode Island for climate impacts. See Conservation Law Foundation’s Am. Compl. for Declaratory and Injunctive Relief and Civil Penalties, Case 1:17-CV-00396, ECF No. 11, ¶ 264 (Oct. 25, 2017) [hereinafter CLF Shell Am. Compl.] (“Shell’s disregard of the substantial and imminent risks to the Providence Terminal and its continuing failure to protect the Providence Terminal against such risks make Shell liable for violations of the CWA and RCRA”).

18. Burger & Gundlach, *supra* note 10, at 23.

19. *Id.*

Even if CLF does not prevail in this case, this suit will still provide valuable lessons about how to proceed with future private adaptation suits.

CLF's trailblazing litigation strategy has emerged amid a backdrop of evolving advocacy and scholarship on climate change. In light of recent investigations about what ExxonMobil may have known and not disclosed about climate change,²⁰ CLF bills its lawsuit as an effort to "Expos[e] ExxonMobil's Dangerous Campaign of Deceit and Denial."²¹ More recently, driven in part by the same alleged deception, New York City sued five oil companies, including ExxonMobil, seeking compensation for the enormous costs of addressing the effects of climate change.²² Meanwhile, because the current President and Congress are determined to roll back U.S. climate regulations, the courts have become an increasingly important venue for achieving climate change solutions and remedies.²³ On a more theoretical level, many law journal articles have discussed the mismatch between existing statutes, which strive to maintain an ecological status quo, and climate change, which is eroding that very notion.²⁴

This Note argues that the time is ripe for climate adaptation litigation against private entities, that CLF has put forward a viable model for such suits, and that, whether CLF succeeds or fails, others should learn from this case and pursue more like it. Part II highlights the benefits of private adaptation itself as well as litigation to achieve it. Part III then presents and analyzes CLF's novel legal theories and ExxonMobil's responses, showing that CLF has put together a compelling test case for this type of litigation. Finally, this Note stresses that *CLF v. ExxonMobil* provides direction to numerous actors—at the federal, state, and local levels—about how they can help foster more climate adaptation.

20. See, e.g., Neela Banerjee et al., *Exxon: The Road Not Taken*, INSIDECLIMATE NEWS (Sept. 16, 2015), <https://insideclimateneews.org/news/15092015/Exxons-own-research-confirmed-fossil-fuels-role-in-global-warming>.

21. *Putting ExxonMobil On Trial*, CONSERVATION LAW FOUNDATION, <https://www.clf.org/making-an-impact/exxonmobil> (last visited Feb. 27, 2018).

22. William Neumanjan, *To Fight Climate Change, New York City Takes on Oil Companies*, N.Y. TIMES (Jan. 10, 2018), <https://www.nytimes.com/2018/01/10/nyregion/new-york-city-fossil-fuel-divestment.html>.

23. See, e.g., Michael Greshko et al., *A Running List of How Trump is Changing the Environment*, NAT'L GEOGRAPHIC, <https://news.nationalgeographic.com/2017/03/how-trump-is-changing-science-environment> (last visited Jan. 5, 2018); Nadja Popovich et al., *67 Environmental Rules on the Way Out Under Trump*, N.Y. TIMES (Dec. 15, 2017, updated Jan. 31, 2018), <https://www.nytimes.com/interactive/2017/10/05/climate/trump-environment-rules-reversed.html>.

24. See, e.g., Victor B. Flatt, *Unsettled: How Climate Change Challenges a Foundation of Our Legal System, and Adapting the Legal State*, 2016 BYU. L. REV. 1395, 1420–24 (2016) (providing a snapshot of much of the recent scholarship on this topic).

II. THE TIME IS RIPE FOR ADAPTATION LITIGATION AGAINST PRIVATE ACTORS

*[T]he pace and extent of adaptation activities are not proportional to the risks to people, property, infrastructure, and ecosystems from climate change.*²⁵

For several years, many climate litigation leaders have envisioned private adaptation suits as a critical, additional tool. For instance, in 2010, Professor Jan McDonald contemplated adaptation suits against emergency planners, engineers, and other infrastructure owners and operators.²⁶ And in 2013, Professors Gerrard and MacDougald believed it was “likely that we will soon see a new phase of litigation over climate change liability—responsibility for adaptation to the effects of climate change, such as sea level rise.”²⁷ They foresaw “a completely new avenue of liability litigation against the providers of infrastructure, as well as the designers and builders of structures that do not withstand foreseeable events.”²⁸

Conservation Law Foundation has started to turn these scholars’ visions into a reality, and now is the time for others to build on CLF’s work. This part of the Note highlights the many reasons to do so. The direct benefit of successful private adaptation litigation is achieving more private adaptation, and an added benefit of that adaptation is to reduce expenditures on future disaster relief. In addition, the mere threat of litigation can push private actors to invest in adaptation measures. Private adaptation litigators can promote environmental justice by focusing on disproportionately affected communities, and there can be a great deal of variety in the kinds of plaintiffs and defendants involved. Finally, private adaptation litigation helps address the increasingly urgent problem of how to apply old laws to new problems (in this case, climate change), while also offering a pragmatic solution to the challenge of what to do when the President and Congress are gutting U.S. climate policy.

A. PRIVATE ADAPTATION CAN SEVERELY REDUCE THE COSTS OF DISASTER RELIEF

Especially in a country like the United States that is “disproportionately coastal,”²⁹ the exorbitant costs of climate-change-fueled disasters³⁰ make

25. U.S. GLOBAL CHANGE RESEARCH PROGRAM, CLIMATE CHANGE IMPACTS IN THE UNITED STATES: THE THIRD NATIONAL CLIMATE ASSESSMENT 687 (Jerry M. Melillo et al. eds., 2014), http://s3.amazonaws.com/nca2014/high/NCA3_Climate_Change_Impacts_in_the_United%20States_HighRes.pdf.

26. Jan McDonald, *Paying the Price of Adaptation: Compensation for Climate Change Impacts, in ADAPTATION TO CLIMATE CHANGE LAW AND POLICY* 1, 23–38 (Tim Bonyhady et al. eds., 2010).

27. Michael B. Gerrard & Joseph A. MacDougald, *An Introduction to Climate Change Liability Litigation and a View to the Future*, 20 CONN. INS. L. J. 153, 162 (2013).

28. *Id.* at 163.

29. Zachary C.M. Arnold, *Preventing Industrial Disasters in a Time of Climate Change: A Call for Financial Assurance Mandates*, 41 HARV. ENVTL. L. REV. 243, 245 (2017).

30. Michael Byers et al., *The Internationalization of Climate Damages Litigation*, 7 WASH. J. ENVTL. L. & POL’Y 264, 266 (2017) (“In 2010, the global costs of climate change, including private and public property damage, were estimated at nearly \$700 billion, [of which] the U.S. incurred an estimated \$45 billion, [and these numbers are] projected to rise dramatically in the coming years”).

adaptation (and mitigation) well worth the investment.³¹ Conversely, inadequate private adaptation on the front end means highly inflated costs on the back end when disaster strikes:

[C]osts of cleanup after an unmitigated disaster far eclipse the cost of instituting preventive measures, sometimes by a factor of 4:1, if not far more. Indeed, hurricane loss-prevention and preparedness measures taken by certain policyholders prior to Hurricane Katrina presented an up-front cost of \$2.5 million, but avoided \$500 million in losses.³²

To the extent businesses neglect to adapt despite this compelling calculus, private adaptation litigation can prod them along.

B. THE THREAT OF PRIVATE ADAPTATION LITIGATION CAN HELP DRIVE MORE ADAPTATION

Although most industries know that climate change is “likely to affect their future,” they are “not yet planning for it with any consistency or depth.”³³ Certainly some may adapt for rational, self-interested reasons,³⁴ but the public sector can and should further nudge them to invest in adaptation by adjusting or creating appropriate incentives.³⁵ And while legislation or regulation can establish general incentives covering categories of actors,³⁶ litigation can push specific private entities to implement tailored adaptation measures. Indeed, the prospect of liability from cases like *CLF v. ExxonMobil* could spur “aggressive and comprehensive adaptation at the local level.”³⁷

31. See THE HAMILTON PROJECT & ENERGY POLICY INSTITUTE AT THE UNIVERSITY OF CHICAGO, TWELVE ECONOMIC FACTS ON ENERGY AND CLIMATE CHANGE 13 (2017), http://www.hamiltonproject.org/assets/files/twelve_economic_facts_energy_climate_change.pdf (in the United States, “[a]daptation investments would prevent trillions of dollars of cumulative costs related to sea-level rise and storm surge”); Charles Di Leva, *Financing Climate Mitigation and Adaptation*, 11 CARBON & CLIMATE L. REV. 314, 317 (2017) (“[E]conomists have been saying for many years that long-term economic growth will depend on climate-compatible investments, both for mitigation and adaptation. Without such investment, damage from climate change could cost between 5% and 20% of global GDP by 2100.”).

32. Maxine Burkett, *Litigating Climate Change Adaptation: Theory, Practice, and Corrective (Climate) Justice*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11144, 11152 (2012); see also Daniel A. Farber, *Adapting to Climate Change: Who Should Pay*, 23 J. LAND USE & ENVTL. L. 1, 3 (2007) (assessing various allocation principles for adaptation costs and tentatively concluding that “Emitters Pay” is the most attractive one).

33. Nanette Byrnes, *Sensing the Inevitable, Companies Begin to Adapt to Climate Change*, MIT TECH. REV. (May 23, 2016), <https://www.technologyreview.com/s/601429/sensing-the-inevitable-companies-begin-to-adapt-to-climate-change>; see also Arnold, *supra* note 29, at 246 (“[C]oastal industries can be expected to underinvest, and are in fact underinvesting, in reducing the risks their operations pose in an era of climate change”).

34. Orr Karassin, *Mind the Gap: Knowledge and Need in Regulating Adaptation to Climate Change*, 22 GEO. INT’L ENVTL. L. REV. 383, 390 (2010).

35. Chiara Trabacchi & Federico Mazza, *Emerging Solutions to Drive Private Investment in Climate Resilience*, CLIMATE POLICY INITIATIVE 5 (June 2015).

36. See McDonald, *supra* note 26, at 13–14.

37. See Burkett, *supra* note 32, at 11145.

The prospect of litigation can also push private actors to acquire “better knowledge and greater ability to interpret risk” so they can more rationally consider costly adaptation measures.³⁸ A study interviewing British and German companies noted that “information and data on local climate change projections, freely available tools to evaluate climate risks, and support for climate risk disclosure, encouraged companies’ engagement in investments and improved their ability to respond to climate change.”³⁹ Stronger incentives to prepare for climate impacts could, for instance, lead to more privately funded studies assessing the climate vulnerabilities of companies’ assets and facilities.⁴⁰

C. PRIVATE ADAPTATION LITIGATION CAN ADVANCE CLIMATE JUSTICE

An essential benefit of private adaptation litigation is the potential to target the most dangerous facilities threatening the most heavily polluted communities. In other words, private adaptation litigation can advance both environmental justice⁴¹ and climate justice.⁴²

CLF’s lawsuit itself is a prime example. The Boston Globe has described Chelsea—one of the towns at risk of contamination from hazardous waste at the Everett terminal—as “a congested, low-income city of immigrants and people of color.”⁴³ These are the kinds of populations that for decades have faced environmental racism and disproportionately high rates of toxic, harmful environments.⁴⁴

38. See Karassin, *supra* note 34, at 398.

39. See Trabacchi & Mazza, *supra* note 35, at 29.

40. See, e.g., Robert S. Young et al., *Coastal Hazard and Sea-level Rise Vulnerability Assessment: Chesapeake Energy Center Coal Ash Disposal Site, Chesapeake, VA*, PROGRAM FOR THE STUDY OF DEVELOPED SHORELINES, WESTERN CAROLINA UNIV. (Jan. 2017), http://www.eenews.net/assets/2017/01/09/document_gw_09.pdf.

41. See generally Raina Wagner, *Adapting Environmental Justice: In the Age of Climate Change, Environmental Justice Demands a Combined Adaptation-Mitigation Response*, 2 ARIZ. J. ENVTL. L. & POL’Y 153 (2011) (explaining the history of the environmental justice (EJ) movement, and noting the EPA’s characterization of EJ as striving for “an environment where all people enjoy the same degree of protection from environmental and health hazards and equal access to the decision-making process to maintain a healthy environment in which to live, learn, and work”); see *id.* at 155 (“Just as with toxic hotspots and Superfund sites, the people in our nation’s EJ Communities might be those most acutely affected by climate change”).

42. Burkett, *supra* note 32, at 11146 (“[C]limate justice[,] like its conceptual predecessor, environmental justice[,] must look to critical ‘footholds’ to succeed in the larger effort toward fair and ambitious responses to both the causes and consequences of climate change”). For a collection of climate adaptation policies aimed at integrating social and environmental justice, see the Adaptation Equity Portal at <http://www.georgetownclimate.org/articles/georgetown-climate-center-launches-adaptation-equity-portal.html> (a collaborative project of Georgetown Climate Center, WE ACT for Environmental Justice, the National Association for the Advancement of Colored People, and other groups).

43. Ebbert, *supra* note 5.

44. See, e.g., Robert D. Bullard, *Race and Environmental Justice in the United States*, 18 YALE J. INT’L L. 319, 319 (1993) (“Industrial toxins, polluted air and drinking water, and the siting of municipal landfills, lead smelters, incinerators, and hazardous waste facilities have had a disproportionate impact

D. FLEXIBILITY IN TERMS OF THE KINDS OF PARTIES

As for potential defendants, private adaptation suits could target an array of potential actors. CLF identified what is probably the lowest hanging fruit: an industrial facility on the shores of a tidal waterway. All the better for the optics—and potentially the merits—of the case is that CLF chose a facility owned by one of the largest and well-known carbon emitters on the planet.⁴⁵ But numerous other types of defendants are potentially available in future litigation: other kinds of marine terminals (e.g., coal export terminals); power plants; industrial and manufacturing sites whose processes could be affected by extreme weather; developers with projects near shorelines; and shipping ports.⁴⁶

There can also be variety in the types of plaintiffs that bring these private adaptation suits. Potential plaintiffs include not only citizen groups, but also state or local governments, federal agencies, insurance companies, and others. In fact, because of standing considerations discussed below,⁴⁷ governmental plaintiffs may be a strategic choice in some cases.⁴⁸ This flexibility lends itself to a plethora of private adaptation lawsuits.

E. PRIVATE ADAPTATION SUITS CAN SHED LIGHT ON THE CHALLENGE OF USING OLD LAWS TO SOLVE NEW PROBLEMS

On a more theoretical level, by relying on provisions of existing statutes and regulations, *CLF v. ExxonMobil* and future suits like it could provide important learning opportunities from two perspectives. First, they could inform our understanding of the kinds of legal norms and standards that climate change adaptation might demand. Second, they could illuminate to what extent existing federal statutes like the Resource Conservation and Recovery Act and the Clean Water Act can already address those threats. This section reviews the salient literature and then considers CLF's case in light of this robust and ongoing scholarly discussion.

upon people of color, working class communities, and the poor. Ecological inequities in the United States result from a number of factors, including the distribution of wealth, housing and real estate practices, and land use planning. Taken together, these factors give rise to what can be called 'environmental racism.'").

45. See Compl., *supra* note 3, ¶ 18.

46. See Leo Hickman, *The Carbon Brief Interview: Michael Gerrard*, CARBONBRIEF (April 19, 2017), <https://www.carbonbrief.org/carbon-brief-interview-michael-gerrard> (Professor Gerrard cites "architects, engineers, [and] builders" as potential adaptation suit defendants).

47. See *infra*, Part III.C. To proceed with a lawsuit, a plaintiff must demonstrate "standing": a legally cognizable injury caused by the defendant and for which the court can provide a remedy.

48. See *Mass. v. EPA*, 549 U.S. 497, 521 (2007) (holding that the state of Massachusetts had standing to sue the EPA for not regulating greenhouse gas emissions).

1. Review of Scholarship Addressing the Mismatch Between Environmental Statutes and Environmental Problems

In general, litigation theories to compel private climate adaptation need to rely on legal requirements that contemplate a changing world, or at least that embrace evolving ecological conditions. Many scholars have argued, however, that these are uncommon features of today's environmental laws, which generally "assume . . . a baseline environment and seek . . . to preserve it."⁴⁹ For example, once a pollutant discharge level is enshrined in a permit, plaintiffs generally have few avenues to argue that changed conditions warrant altering that level.⁵⁰ As a result, Professor Robin Kundis Craig has described today's environmental laws as being largely stuck in the paradigms of restoration and preservation.⁵¹ Although these frameworks may have served us well in the early days of the environmental movement, they are a less than ideal fit for the set of transformative problems we face today, most prominently climate change.⁵²

In place of—or in addition to—today's largely status-quo-enforcing laws, one scholar has argued that two kinds of laws are needed: "*adaptation* laws, whose substantive regulatory objectives include adaptation, and *adaptive* laws, the implementation of which can accommodate creeping changes and sudden shocks that climate change might bring."⁵³ More recently, another scholar has extended this line of thinking by arguing that "adaptation, adaptive management, adaptive planning, adaptive governance, and adaptive law" are all needed.⁵⁴

Many scholars refer to "adaptive management" as a conceptual model for the kind of laws that are needed. They cite examples like Kenya's "policy whereby licenses for development may be limited, changed, or even taken away in the event that a project poses an environmental threat that regulators could not have foreseen before approval."⁵⁵ Under such a regime, "the ability to predict far into

49. Gerrard, *supra* note 7, at 12.

50. *But see* Clean Water Act § 1342(b)(1)(C)(iii) (allowing certain Clean Water Act permits to be "terminated or modified for cause including [a] change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge").

51. Robin Kundis Craig, "Stationarity Is Dead"—*Long Live Transformation: Five Principles for Climate Change Adaptation Law*, 34 HARV. ENVTL. L. REV. 9 (2010) [hereinafter Craig, *Stationarity*]; *see also* Holly Doremus, *Adapting to Climate Change with Law That Bends Without Breaking*, 2 SAN DIEGO J. CLIMATE & ENERGY L. 45 (2010); Alejandro E. Camacho & Robert L. Glicksman, *Legal Adaptive Capacity: How Program Goals and Processes Shape Federal Land Adaptation to Climate Change*, 87 U. COLO. L. REV. 711 (2016).

52. *See* Craig, *supra* note 51; R. Henry Weaver & Douglas A. Kysar, *Courting Disaster: Climate Change and the Adjudication of Catastrophe*, 93 NOTRE DAME L. REV. 295, 296 (2017) ("Climate change challenges the capacity of law").

53. Jan McDonald, *Mapping the Legal Landscape of Climate Change Litigation*, in ADAPTATION TO CLIMATE CHANGE LAW AND POLICY, 23–38 (Tim Bonyhady et al. eds., 2010).

54. Craig Anthony Arnold, *Environmental Law, Episode IV: A New Hope? Can Environmental Law Adapt for Resilient Communities and Ecosystems?*, 21 J. ENVTL. & SUSTAINABILITY L. 1, 4 (2015).

55. Robert L. Fischman & Jillian R. Rountree, *Adaptive Management*, in THE LAW OF ADAPTATION TO CLIMATE CHANGE 31 (Michael B. Gerrard & Katrina Fischer Kuh eds., 2012).

the future is no longer as necessary since problems can be detected and handled during the course of management.”⁵⁶ But recently, Professor Craig and Professor J.B. Ruhl have observed that adaptive management “is moving slowly and with mixed results,” and that “[p]utting adaptive management into practice has proven far more difficult than its early theorists expected.”⁵⁷

Rather than exploring ways to update the substance of particular environmental laws, Professor Craig offers five broad principles for climate change adaptation law: (1) “Monitor and Study Everything All the Time,” (2) “Eliminate or Reduce Non-Climate Change Stresses and Otherwise Promote Resilience,” (3) “Plan for the Long Term with Much Increased Coordination Across Media, Sectors, Interests, and Governments,” (4) “Promote Principled Flexibility in Regulatory Goals and Natural Resource Management,” and (5) “Accept—Really Accept—That Climate Change Adaptation Will Often Be Painful.”⁵⁸ A subprinciple of the fourth principle is to “Engage in Robust Decision Making with Respect to More Permanent or Expensive Adaptation Strategies to Help Retain Flexibility and Avoid Path Dependence.”⁵⁹ And under that subprinciple is this advice:

Decision makers should be cognizant that retaining as much flexibility as possible is itself an important adaptation strategy[, and it] is especially important during the early stages of climate change, while information regarding [effects] in particular locations and adequate models to generate future predictions are still being developed Adaptation to sea level rise is likely to be one of the first testing grounds for this principle.⁶⁰

Professor Craig’s principles involve what others would call “procedural legal adaptive capacity,” in contrast with “substantive legal adaptive capacity.”⁶¹ Whereas the procedural variety “measures the degree to which a legal regime’s process is able to adjust to new policy directions or information or changed factual circumstances,” substantive legal adaptive capacity “refers to the extent to which a legal regime’s goals are capable of responding to changed conditions.”⁶²

2. What Scholars and Practitioners Can Learn from *CLF v. ExxonMobil*

CLF v. ExxonMobil tests the so-called substantive legal adaptive capacity of the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act

56. *Id.*

57. Robin Kundis Craig & J.B. Ruhl, *Designing Administrative Law for Adaptive Management*, 67 VAND. L. REV. 1, 9–10 (2014).

58. Craig, *supra* note 51, at 40–70.

59. *Id.* at 67.

60. *Id.* at 68.

61. See Camacho & Glicksman, *supra* note 51.

62. *Id.* at 729, 724. Professors Camacho and Glicksman are extending the notion of “adaptive capacity” from the scientific realm. *Id.* at 721 (citing the Intergovernmental Panel on Climate Change (IPCC) as defining “adaptive capacity” as “the ability or potential of a system to respond successfully to climate variability and change, and includes adjustments in both behavior and in resources and technologies”).

(CWA). The relevant standards—“imminent and substantial endangerment” under RCRA, and various standards under the CWA (e.g., “good engineering practices”)—are arguably expansive enough to apply to climate-induced changes. CLF will find out whether some courts agree, and the analysis in Part III touches on these issues. CLF’s case also implicates Professor Craig’s warning against locking in expensive adaptation strategies in the early, data-gathering stages of climate change.⁶³ This advice creates a tension between, on the one hand, CLF’s and the local communities’ emphasis on implementing protective adaptation measures sooner rather than later, and, on the other hand, ExxonMobil’s likely arguments that a lack of predictive ability justifies postponing any action. But from another perspective, this advice suggests prudent action both in the near-term and long-term rather than delay, in light of the varying probabilities of the different predicted risks.

F. THE PRAGMATIC ARGUMENT FOR PRIVATE ADAPTATION LITIGATION

Stepping back down from the theoretical plane to a more pragmatic one, a key question is which forum offers advocates the best chance to achieve the legal changes needed to meet the growing demands of climate change adaptation. In 2014, some scholars argued that the most appropriate “statutory updaters” were agencies, in light of a “dysfunctional” Congress, the prospect of statutory “obsolescence,” and an administration hoping to make progress on climate change.⁶⁴ Today, the first two of those conditions are arguably still satisfied, but the third patently is not.⁶⁵ Given that both Congress and the President are now much more interested in weakening existing environmental laws rather than reinvigorating them, the courts have become an increasingly important venue. Even if courts cannot change the letters of the law, they can make new uses of existing laws by embracing novel statutory interpretations.

The good news is that existing law provides numerous possible grounds for climate adaptation litigation. The Sabin Center for Climate Change Law at Columbia Law School recently created a dedicated page for legal resources for climate adaptation, including “specific legal provisions that could be interpreted as requiring consideration of climate-related risks.”⁶⁶ The site contemplates litigation against either public or private entities, but many of the listed strategies could support suits solely against private actors. This Note is limited to two federal laws, but states could produce a similar range of options based on state law.

63. See *supra*, text accompanying notes 58–60.

64. Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. 1, 2–4 (2014).

65. See Popovich et al., *supra* note 23.

66. *Legal Resources for Climate Change Adaptation*, Sabin Center for Climate Change Law, <http://columbiaclimatelaw.com/resources/adaptation-database> (last visited Feb. 25, 2018); see also Jessica Wentz, *New: Adaptation Resource Database*, CLIMATE LAW BLOG (March 23, 2017), <http://blogs.law.columbia.edu/climatechange/2017/03/23/new-adaptation-resource-database>.

III. ANALYSIS OF *CLF v. EXXONMOBIL*

This Part delves into CLF's specific allegations and arguments and ExxonMobil's responses, so that readers can understand what CLF did and build upon it. Of course, future litigants will want to learn from what the courts have to say about CLF's approach; in fact, the court in this case has already issued one order on the issue of standing.

CLF's theory is that ExxonMobil's failure to fortify the terminal against "the imminent risks of climate change"—despite being aware of those risks—violates the Resource Conservation and Recovery Act and the Clean Water Act.⁶⁷ The following sections explain the key facts of the case and analyze CLF's claims, ExxonMobil's strongest counter-arguments, and CLF's rebuttals. Additional arguments are considered as well, beyond those made by the parties.

A. BACKGROUND: PROCEDURAL HISTORY AND KEY FACTS

As this Note went to print, CLF's suit was still underway. This section provides the procedural history of the case and a summary of the key facts.

1. Procedural History

CLF, the only plaintiff, brought this civil suit against ExxonMobil⁶⁸ under the citizen suit provisions of RCRA⁶⁹ and the CWA⁷⁰ in federal district court in the District of Massachusetts. CLF claims the company must incorporate known climate risks—sea level rise, storm surge, and extreme weather events—into its stormwater⁷¹ management plans required by the CWA,⁷² and that ExxonMobil's failure to adapt to these known risks constitutes an "imminent and substantial endangerment"⁷³ under RCRA. In addition to civil penalties, CLF seeks to enjoin ExxonMobil from "further violating" the CWA or RCRA.⁷⁴ CLF also makes some relatively routine CWA claims about pollution discharges, but this Note focuses on the group's CWA and RCRA claims based on climate change.

67. Compl., *supra* note 3, ¶ 170.

68. The named defendants are ExxonMobil Corporation, ExxonMobil Oil Corporation, and ExxonMobil Pipeline Company. *Id.* ¶ 1.

69. 42 U.S.C. § 6972 (2012).

70. 33 U.S.C. § 1365 (2012).

71. "Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground. The runoff picks up pollutants like trash, chemicals, oils, and dirt/sediment that can harm our rivers, streams, lakes, and coastal waters." *NPDES Stormwater Program*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/npdes/npdes-stormwater-program> (last visited Feb. 25, 2018).

72. Compl., *supra* note 3, ¶¶ 211–82 (citing numerous provisions of the CWA and associated regulations); *see infra* Part III.E.

73. *Id.* ¶ 186 (citing 42 U.S.C. § 6972(a)(1)(B)).

74. *Id.* ¶¶ 295(a)–(b).

ExxonMobil filed a motion to dismiss,⁷⁵ to which CLF responded.⁷⁶ The court partially granted and partially denied the motion to dismiss, based on standing considerations discussed below.⁷⁷ CLF then filed an amended complaint,⁷⁸ which largely includes the same causes of action and requests for relief as the original.

2. Key Facts

ExxonMobil's facility, which is surrounded by residential neighborhoods, is a 110-acre "petroleum products distribution and bulk storage terminal" that receives, ships, and stores (in "tank farms") various types of fuel.⁷⁹ The terminal "generates, stores, handles, and disposes of" more than two dozen kinds of hazardous materials.⁸⁰ Stormwater (and other wastewater) collects throughout the site, gets processed in a treatment system, and then discharges into the Island End River, a tributary of the Mystic River.⁸¹

Due to its low elevation,⁸² proximity to the Island End and Mystic Rivers, and "lack of preventative infrastructure," the terminal is "vulnerable to sea level rise, increased precipitation, increased magnitude and frequency of storm events, and increased magnitude and frequency of storm surges."⁸³ This vulnerability is not just hypothetical: in July 2010, a powerful storm led to a "discharge of untreated pollutants directly into the Island End River."⁸⁴

The terminal faces the risk of inundation from the combination of sea level rise, hurricanes, and floods. A "substantial part" of the site is in a "flood hazard zone," based on updated Federal Emergency Management Agency (FEMA) data, and yet ExxonMobil has not requested updated FEMA flood hazard maps for its Everett operations.⁸⁵ Most of the terminal area is also within a "Category 1' Hurricane Surge Inundation Zone," and "a four-foot or greater rise in sea level

75. Mem. of Law in Supp. of Defs.' Mot. to Dismiss, *Conservation Law Found. v. ExxonMobil Corp.*, Case 1:16-cv-11950 (MLW) (D. Mass. Dec. 6, 2016) ECF No. 17 at 26 [hereinafter Mem. Def.]; *see also* Mem. of Law in Supp. of Defs.' Mot. to Dismiss the Amended Complaint, Case 1:16-cv-11950-MLW, ECF No. 37, at 26 (Dec. 20, 2017). In these memos, ExxonMobil argues that CLF's various claims should be dismissed for lack of standing and for failure to state a claim under, respectively, Federal Rules of Civil Procedure 12(b)(1) and 12(b)(6).

76. Mem. CLF, *supra* note 4.

77. Order, *Conservation Law Found. v. ExxonMobil Corp.*, Case 1:16-cv-11950 (MLW) (D. Mass. Sept. 13, 2017) ECF No. 29; *see also infra* Part III.C (discussing standing).

78. Am. Compl. for Declaratory and Injunctive Relief and Civil Penalties, *Conservation Law Found. v. Exxonmobil Corp.*, Case 1:16-cv-11950 (MLW), (D. Mass. Oct. 20, 2017) ECF No. 34 [hereinafter Am. Compl.].

79. Compl., *supra* note 3, ¶¶ 33–36, 43.

80. *Id.* ¶ 37.

81. *Id.* ¶¶ 41–42, 45–46, 55, 57.

82. The terminal grounds are mostly at or below 10.5 feet, which was the elevation of Everett's highest-recorded flood (from 1978). *Id.* ¶¶ 72–73.

83. *Id.* ¶¶ 70–71.

84. *Id.* ¶ 79.

85. *Id.* ¶¶ 75–78.

will inundate much of the Terminal.”⁸⁶

B. CLIMATE RISKS AND EXXONMOBIL’S ALLEGED DECEPTION

Both versions of CLF’s complaint include robust, detailed explanations of the well-established and multi-faceted threat of climate change.⁸⁷ CLF includes information about the judicial recognition of climate change, ExxonMobil’s awareness of it, and a high-level review of the latest climate change research. CLF highlights the Supreme Court’s acknowledgment of “the enormity of the potential consequences associated with manmade climate change” and “[t]he risk of catastrophic harm.”⁸⁸ CLF ties these concerns directly to the type of risks that face the communities surrounding ExxonMobil’s facility.

The original complaint has a lengthy section entitled “ExxonMobil has Long Been Aware of Climate Change and the Related Impacts,” and much of the same content appears in the amended complaint.⁸⁹ In those sections, CLF carefully traces ExxonMobil’s internal documents showing its awareness of climate change risks, going back to the 1970’s. For instance, in an internal 1977 memo, a company scientist wrote that the “CO₂ problem . . . is the most important man-made weather problem that we have to contend with.”⁹⁰ Fast forward to 2016, when an ExxonMobil representative said that the risks of climate change “warrant constructive action by policymakers [and] the business community.”⁹¹ And the company has stated that with respect to its own facilities and assets, “[l]ocal climate, as well as potential changes in local conditions over the life of the investment (such as changes to sea level or permafrost) are carefully assessed and considered.”⁹² Moreover, “given the spatial and temporal uncertainties of many extreme weather events, particularly with respect to future changes in climate, facilities are generally engineered to be resilient to extreme event ‘tails’, with the inclusion of additional safety factor.”⁹³ Similarly, ExxonMobil “designs, constructs and operates [its] facilities to withstand a variety of extreme weather conditions.”⁹⁴

CLF draws heavily from federal and state government reports to demonstrate the current and growing risks caused or exacerbated by climate change. The

86. *Id.* ¶¶ 80–81. CLF relies on National Oceanic and Atmospheric Administration data presented by the Massachusetts Office of Geographic Information. See *Sea, Lake, and Overland Surges from Hurricanes (SLOSH)*, NATIONAL HURRICANE CENTER, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, <http://www.nhc.noaa.gov/surge/slosh.php> (last visited May 15, 2017); *OLIVER: MassGIS’s Online Mapping Tool*, OFFICE OF GEOGRAPHIC INFORMATION (MassGIS), http://maps.massgis.state.ma.us/map_ol/oliver.php (last visited Feb. 27, 2018).

87. Compl., *supra* note 3, ¶¶ 89–96; Am. Compl., *supra* note 78, ¶¶ 111–205.

88. Am. Compl., *supra* note 78, ¶ 114 (quoting *Mass. v. EPA*, 549 U.S. 497, 525–26 (2007)).

89. Compl., *supra* note 3, ¶¶ 97–170.

90. *Id.* ¶ 102. “CO₂” is carbon dioxide, the primary greenhouse gas causing climate change.

91. *Id.* ¶ 146.

92. *Id.* ¶ 156.

93. *Id.*

94. *Id.* ¶ 159.

Intergovernmental Panel on Climate Change (IPCC) wrote in 2014 that “[i]mpacts related to climate change are already evident in many sectors.”⁹⁵ Indeed, as CLF stresses, we have already witnessed the wrenching and deadly effects of Superstorm Sandy and Hurricane Harvey.⁹⁶ Meanwhile, sea level rise near Boston “could reach six feet” by the end of the century, according to reports by the IPCC and a Massachusetts environmental agency.⁹⁷ Heightened sea level “would increase the height of storm surges and associated coastal flooding frequencies, permanently inundate low-lying coastal areas, and amplify shore line erosion.”⁹⁸ As a result, “[e]xtensive development and infrastructure, both public and private, would be affected in these expanding vulnerable areas.”⁹⁹ As sea level rise accelerates, “not only will the impacts from coastal storm events become more frequent and widespread, but even daily high tides will have adverse effects.”¹⁰⁰

C. STANDING

Plaintiffs must convince a judge that they have “standing” to sue. Specifically, Plaintiffs must show that they have suffered a legally cognizable injury that the defendant caused and that the court can remedy. This requirement derives from Article III of the United States Constitution, which authorizes federal courts to hear only “cases” or “controversies.”¹⁰¹ Given how important standing is for plaintiffs, it is a heavily analyzed topic and the subject of many law review articles.¹⁰²

The standing bar is particularly high for plaintiffs like CLF who allege injuries based on climate change. Indeed, standing is the only issue the court addressed in its order partially denying ExxonMobil’s motion to dismiss.¹⁰³

95. *Id.* ¶ 92(d) (quoting THE THIRD NATIONAL CLIMATE ASSESSMENT 687 (Jerry M. Melillo et al. eds., 2014)).

96. *See* Am. Compl., *supra* note 78, ¶¶ 206–17.

97. Compl., *supra* note 3, ¶ 93(a) (citing EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS, MASSACHUSETTS CLIMATE CHANGE ADAPTATION REPORT 2 (Sept. 2011)).

98. *Id.* ¶ 93(h).

99. *Id.*

100. *Id.* ¶ 94 (citing MASSACHUSETTS OFFICE OF COASTAL ZONE MANAGEMENT, SEA LEVEL RISE: UNDERSTANDING AND APPLYING TRENDS AND FUTURE SCENARIOS FOR ANALYSIS AND PLANNING 5, (December 2013)).

101. U.S. CONST. art. III, § 2, cl. 1.

102. *See, e.g.*, Courtney Chin, *Standing Still: The Implications of Clapper for Environmental Plaintiffs’ Constitutional Standing*, 40 COLUM. J. ENVTL. L. 323 (2015); Bruce Myers et al., *Charting an Uncertain Legal Climate: Article III Standing in Lawsuits to Combat Climate Change*, 45 ENVTL. L. REP. NEWS & ANALYSIS 10509 (2015) (providing a “comprehensive snapshot of how [lower federal] courts have ruled in cases where the standing analysis was documented in a written opinion”); David S. Green, *Massachusetts v. EPA Without Massachusetts: Private Party Standing in Climate Change Litigation*, 36 FALL ENVIRONS ENVTL. L. & POL’Y J. 35, 36 (2012) (“the standing doctrine has long been regarded as anything but simple to apply, and the [Supreme] Court’s recent forays into climate change litigation have helped further this reputation”); Daniel A. Farber, *Uncertainty as a Basis for Standing*, 33 HOFSTRA L. REV. 1123 (2005).

103. Order, *supra* note 77.

The analysis in this section proceeds by (1) outlining the requirements of standing, (b) identifying CLF's arguments for standing under RCRA and the CWA, and (c) discussing the court's order evaluating CLF's standing arguments. The ultimate disposition of this case will illuminate how future plaintiffs should approach their standing arguments in these types of suits.

1. Standing Requirements

In general, a plaintiff must show that she has suffered a legally cognizable injury, that the defendant caused the injury, and that the court can redress the injury.¹⁰⁴ A member-based group like CLF also must show that the interests involved are germane to its purpose, that at least one of the group's members would have standing to sue individually, and that the suit does not require the participation of any member.¹⁰⁵ Finally, when a plaintiff brings multiple claims, he or she must show standing for each claim.¹⁰⁶ So, CLF must show standing for each claim under the CWA and RCRA.

2. CLF's Standing Under the Resource Conservation and Recovery Act

To establish standing for its RCRA claim of "imminent and substantial endangerment," CLF alleges that its members "have an interest in eliminating the risk [that] toxic pollutants from the Everett Terminal [will pollute] the Island End and Mystic Rivers [and] nearby communities when the Terminal is flooded by a severe storm and/or sea level rise."¹⁰⁷ Specifically, CLF claims that for its members living near the Everett terminal, "[k]nowing that these risks exist decreases their aesthetic appreciation" of the two rivers.¹⁰⁸ In terms of causation, CLF claims ExxonMobil's failure to "properly engineer . . . , manage . . . , and fortif[y] or, if necessary, relocate" the terminal leads to the climate risks.¹⁰⁹ And because

104. Specifically, a plaintiff must show "(1) it has suffered an 'injury in fact' that is (a) concrete and particularized and (b) actual or imminent, not conjectural or hypothetical; (2) the injury is fairly traceable to the challenged action of the defendant; and (3) it is likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision." *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc.*, 528 U.S. 167, 180–81 (2000).

105. See *Mem. CLF*, *supra* note 4, at 7–9. In its complaint, CLF does not explicitly walk through this analysis for member-based groups. But it claims to be "a nonprofit, member-supported organization dedicated to protecting New England's environment [and] waterways, including addressing the significant water quality impacts of industrial and stormwater pollution." *Compl.*, *supra* note 3, ¶ 8. To satisfy the requirement that at least one of its members would have standing individually, CLF provided the affidavits of five members, including Roseanna Bongiovanni. See *Mem. CLF*, *supra* note 4, at 11–13.

106. See Erik R. Zimmerman, *Supplemental Standing for Severability*, 109 *Nw. U. L. Rev.* 285 (2015) ("plaintiffs must have standing for every claim that they raise," citing *DaimlerChrysler Corp. v. Cuno*, 547 U.S. 332, 352–53 (2006)); *Mem. Def.*, *supra* note 75, at 20 ("With respect to each of the claims brought, an association must plead [the elements of Article III standing]") (emphasis added).

107. *Compl.*, *supra* note 3, ¶ 10.

108. See *Mem. CLF*, *supra* note 4, at 9.

109. *Compl.*, *supra* note 3, ¶ 178.

an “endangerment” claim inherently involves probabilistic harms, such harms are legally cognizable in the RCRA context.¹¹⁰

ExxonMobil criticizes CLF’s members’ alleged injuries for being “not only remote, but also uncertain” and for lacking a “sufficiently direct causal connection” to the company’s actions.¹¹¹ The company focuses on “CLF’s attenuated fears concerning a four-foot sea level rise by the year 2100,” a possibility ExxonMobil characterizes as “sheer speculation.”¹¹²

In response, CLF points out that ExxonMobil ignores the other climate risks—storm surges, severe weather events, and increased precipitation—which, along with sea level rise, the group describes as “serious and well recognized generally and as related to the Boston area.”¹¹³ And CLF stresses that “sea level rise is already underway and will continue to grow more severe.”¹¹⁴ Regarding causation, CLF characterizes the connection between ExxonMobil’s statutory violations and CLF’s members’ injuries as “direct and immediate,” relying heavily on the five members’ affidavits and the complaint’s statements about the terminal’s vulnerability and lack of adequate fortifications.¹¹⁵

3. CLF’s Standing Under the Clean Water Act

To establish standing for its CWA claims, CLF alleges that its members “use and enjoy New England’s waterways for recreational and aesthetic purposes”¹¹⁶ and “are concerned about and have an interest in preventing ExxonMobil’s [toxic] pollutant discharges from the Everett Terminal.”¹¹⁷ CLF is relying on Supreme Court precedent that “aesthetic and environmental well-being,” even if shared by many, can suffice for purposes of showing standing, as long as the individual plaintiff has actually been injured.¹¹⁸ Moreover, CLF argues that “the scale of injury need not be significant and is not germane for purposes of standing; ‘an identifiable trifle will suffice.’”¹¹⁹ As for causation, CLF claims that the pollution discharges “result from ExxonMobil’s failure to operate its pollutant treatment system in a manner that complies with its NPDES

110. See Mem. CLF, *supra* note 4, at 6 (citing *Maine People’s All. v. Mallinckrodt, Inc.*, 471 F.3d 277, 283–84 (1st Cir. 2006)).

111. See Mem. Def., *supra* note 75, at 22–25.

112. *Id.* at 22.

113. Mem. CLF, *supra* note 4, at 14.

114. *Id.* at 11.

115. See *id.*

116. Compl., *supra* note 3, ¶ 8.

117. *Id.* ¶ 9.

118. *Sierra Club v. Morton*, 405 U.S. 727, 734–35 (1972); see also *Maine People’s All. v. Mallinckrodt, Inc.*, 471 F.3d 277, 284 (1st Cir. 2006) (“Plaintiffs in environmental suits may predicate claims of injury on aesthetic or recreational harms. Still, neither a bald assertion of such a harm nor a purely subjective fear that an environmental hazard may have been created is enough to ground standing. Rather, an individual’s decision to deny herself aesthetic or recreational pleasures based on concern about pollution will constitute a cognizable injury only when the concern is premised upon a realistic threat.”) (internal citations omitted).

119. Mem. CLF, *supra* note 4, at 6 (citing *Pub. Interest Research Grp. of New Jersey, Inc. v. Powell Duffryn Terminals Inc.*, 913 F.2d 64, 71 (3d Cir. 1990)).

Permit,¹²⁰ meaning that much of this pollution would be avoidable if ExxonMobil operated its pollutant treatment system as required by the Permit.”¹²¹

In a prior case,¹²² CLF and other plaintiffs failed to satisfy the injury or redressability prongs of standing when they wanted the EPA to incorporate climate change risks into certain water quality decisions. The plaintiffs had to show that their recreational interests in the waterway in question “would be directly affected by the EPA’s failure to consider climate change.”¹²³ But affidavits offered by the plaintiffs failed to “assert any connection between the declarants’ injuries and the EPA’s alleged failure to consider the effects of climate change.”¹²⁴ Moreover, the affidavits did not “provide evidence of any link between the algae growth [due to excess nutrient pollution in the relevant waterway] that contributes to the [plaintiffs’] alleged injury and the EPA’s actions or omissions with respect to climate change.”¹²⁵

4. Redressability for the Claims Under both RCRA and the CWA

As for redressability, CLF makes relatively few explicit arguments and does not associate them with the RCRA or CWA claims specifically. CLF must show that “it is likely, as opposed to merely speculative, that [its alleged] injur[ies] will be redressed by a favorable decision.”¹²⁶ Understandably, the facts of this case make it challenging to draw a straight line between the relief CLF seeks and the injuries it alleges. Drawing this line is less critical for civil penalties, which generally provide redress in and of themselves.¹²⁷ For injunctive relief, however, CLF struggles to spell out precise relationships between the relief it seeks and the injuries it has alleged. The group relies heavily on expert opinions to demonstrate redressability, but those declarations generally assert redressability without explaining it clearly.¹²⁸ However, the experts do offer many valuable insights and

120. National Pollutant Discharge Elimination System (NPDES) permits are authorized under the CWA. *See infra* Part III.E.1.

121. Compl., *supra* note 3, ¶ 9.

122. CLF v. EPA, 964 F. Supp. 2d 175 (D. Mass. 2013).

123. *Id.* at 188.

124. *Id.* at 189.

125. *Id.* at 191.

126. *Friends of the Earth, Inc. v. Laidlaw Envtl. Servs. (TOC), Inc.*, 528 U.S. 167, 181 (2000).

127. *Id.* at 186 (“To the extent that they encourage defendants to discontinue current violations and deter them from committing future ones, [civil penalties] afford redress to citizen plaintiffs who are injured or threatened with injury as a consequence of ongoing unlawful conduct.”).

128. Each expert declaration includes many statements in the form of “the court could grant X relief that would redress Y injury” without explaining the causal connection between the relief and the redress of the injury. *See, e.g.*, Exhibit I (“The Court could grant relief to CLF and its members that would redress their injuries stemming from ExxonMobil’s failure to operate its discharge system in compliance with its [CWA] permit.”).

suggestions for specific injunctive relief.¹²⁹

5. District Court Holdings on Standing

The district court held that CLF's alleged injuries occurring in "the near future and while the Permit [i]s in effect" satisfy Article III standing, but that those in "the far future, such as in 2050 or 2100" do not.¹³⁰ The near-term injuries that the court found satisfactory result from excess pollution discharges into areas of the Mystic River that CLF's members use recreationally.¹³¹ CLF plausibly claims, the court found, that there is a "'substantial risk' that severe weather events, such as storm surges, heavy rainfall, or flooding, will cause the terminal to discharge pollutants into those areas in the near future and while the Permit is in effect."¹³² The court concluded that these near-term discharge-based injuries would be redressed by a court order requiring ExxonMobil to comply with its permit.¹³³

By contrast, the court held that CLF lacks standing for "injuries that allegedly will result from rises in sea level, or increases in the severity and frequency of storms and flooding, that will occur in the far future, such as in 2050 or 2100."¹³⁴ Those "potential harms" were found to be neither "imminent" nor "ripe"¹³⁵ for decision because, among other reasons, the Environmental Protection Agency may require changes to the Permit that will prevent the harms from occurring."¹³⁶

129. See Ex. J, ¶ 20 ("Injunctive relief required by the court should include, at a minimum, requiring ExxonMobil to complete specific studies and engineering design plans to address storm surge, sea level rise and other climate change-induced impacts, and requiring ExxonMobil to implement measures to assure that Everett and surrounding communities are adequately protected from pollutant discharges both as a result of stormwater runoff and flooding of the Terminal."); Ex. K, ¶ 18 ("The court should grant injunctive relief requiring ExxonMobil to assess the vulnerabilities of the Everett terminal in light of climate change, develop engineering design plans to adequately address those vulnerabilities, and ultimately implement measures that will protect Everett and other surrounding communities from contamination from this terminal. The Engineering Standard of Care doctrine includes various considerations such as applying higher levels of certainty and lower degrees of risk when addressing human health and safety, as opposed to matters of nuisance or preference.").

130. Order, *supra* note 77, at 2.

131. *Id.* at 1–2.

132. *Id.* at 2.

133. *Id.*

134. *Id.*

135. Ripeness is a judge-made—as opposed to constitutionally required—doctrine precluding courts from hearing cases based on complaints about matters still pending before administrative bodies. See generally Erwin Chemerinsky, FEDERAL JURISDICTION § 2.4, at 124–37 (7d ed. 2016).

136. Order, *supra* note 77, at 2–3.

D. RESOURCE CONSERVATION AND RECOVERY ACT

1. Background

The Resource Conservation and Recovery Act¹³⁷ is “the primary federal statute addressing the management of solid and hazardous waste.”¹³⁸ Like the CWA and most environmental laws,¹³⁹ RCRA authorizes citizen suits¹⁴⁰ under certain conditions.¹⁴¹ CLF brought its claim under § 6972(a)(1)(B), which authorizes suits against “any person, including . . . [any] past or present owner or operator of a treatment, storage, or disposal facility, who has contributed or who is contributing to the past or present handling, storage, treatment, transportation, or disposal of any solid or hazardous waste which may present an imminent and substantial endangerment to health or the environment.”¹⁴²

Courts have interpreted this language broadly: “the combination of the word ‘may’ with the word ‘endanger,’ both of which are probabilistic, lead us to conclude that a reasonable prospect of future harm is adequate to engage the gears of RCRA . . . so long as the threat is near-term and involves potentially serious harm.”¹⁴³ A “showing that actual harm will occur immediately” is not required “so long as the risk of threatened harm is present.”¹⁴⁴ In other words, “it is the *threat* that must be close at hand, even if the perceived *harm* is not.”¹⁴⁵ For instance, “if there is a reasonable prospect that a carcinogen released into the environment today may cause cancer twenty years hence, the threat is near-term

137. 42 U.S.C. §§ 6901–6992k (2014).

138. *Sierra Club v. EPA*, 755 F.3d 968, 970 (D.C. Cir. 2014). RCRA’s “purpose [is] to reduce the generation of hazardous waste and to ensure the proper treatment, storage, and disposal of that waste which is nonetheless generated, ‘so as to minimize the present and future threat to human health and the environment.’” *Meghrig v. KFC W., Inc.*, 516 U.S. 479, 483 (1996) (quoting 42 U.S.C. § 6902(b)).

139. See Jeffrey G. Miller, *Theme and Variations in Statutory Preclusions Against Successive Environmental Enforcement Actions by EPA and Citizens Part One: Statutory Bars in Citizen Suit Provisions*, 28 HARV. ENVTL. L. REV. 401, 416–17 (2004) (noting that “all but one of the major [environmental, aka pollution control] statutes provide for citizen enforcement”—the exception being the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 136–136y).

140. Citizen may bring suits against “any person” allegedly violating a RCRA permit or other requirement (§ 6972(a)(1)(A)), “any person” whose waste-related actions “may present an imminent and substantial endangerment” (§ 6972(a)(1)(B)), or against the EPA for not performing a non-“discretionary” duty under RCRA (§ 6972(a)(2)).

141. For instance, § 6972(b)(2)(A)(i) requires citizen plaintiffs to give the EPA ninety-days’ notice before bringing an “imminent and substantial endangerment” claim. And citizens may not bring such claims if the EPA Administrator “has commenced and is diligently prosecuting an action under [RCRA §] 6973 [or under] the Comprehensive Environmental Response, Compensation and Liability Act of 1980 [42 U.S.C.A. § 9606].” 42 U.S.C. § 6972(b)(2)(B)(i).

142. Under §6972(a)(1)(B), the defendant’s conduct may be “ongoing or purely in the past,” as long as it currently “may” pose an “imminent and substantial endangerment.” *Goldfarb v. Mayor & City Council of Baltimore*, 791 F.3d 500, 505 (4th Cir. 2015).

143. *Maine People’s All. v. Mallinckrodt, Inc.*, 471 F.3d 277, 296 (1st Cir. 2006).

144. *Price v. U.S. Navy*, 39 F.3d 1011, 1019 (9th Cir.1994).

145. *Mallinckrodt*, 471 F.3d at 279 n.1.

even though the perceived harm will only occur in the distant future.”¹⁴⁶ And the term “substantial” “does not require quantification of the endangerment (e.g., proof that a certain number of persons will be exposed, that excess deaths will occur, or that a water supply will be contaminated to a specific degree); [r]ather, an endangerment is substantial if there is some reasonable cause for concern that someone or something may be exposed to a risk of harm . . . if remedial action is not taken.”¹⁴⁷

As for remedies, RCRA gives courts broad discretion to fashion appropriate injunctive relief, even in the face of complex, technically convoluted problems.¹⁴⁸ District courts may “restrain” any person who has violated § 6972(a)(1)(B), and they have “considerable flexibility”¹⁴⁹ to “order such person[s] to take such other action as may be necessary.”¹⁵⁰ This “expansive language confer[s] upon the courts the authority to grant affirmative equitable relief to the extent necessary to eliminate any risk posed by toxic wastes.”¹⁵¹

2. CLF’s Claim

CLF claims that the terminal presents an “imminent and substantial endangerment to health or the environment” because ExxonMobil has failed to adapt to the climate risks of “sea level rise, increased precipitation and flooding and severe storm impacts (including wind, storm surge and pounding surf).”¹⁵² This failure to adapt “puts the facility, the public health, and the environment at great risk because a significant storm surge, rise in sea level, and/or extreme rainfall event may flood the facility and release solid and hazardous wastes into the Island End River, Mystic River, and directly onto the city streets of Everett.”¹⁵³

In support of its claim, CLF relies on many of the same cases cited in the previous section of this Note.¹⁵⁴ If a carcinogen that “may” cause cancer well into the future constitutes a threat that is “close at hand,” then it seems entirely plausible that the climate risks CLF cites do so as well. To satisfy RCRA’s other basic

146. *Id.*

147. *United States v. Union Corp.*, 259 F. Supp. 2d 356, 400 (E.D. Pa. 2003) (internal citations and quotation marks omitted).

148. *See Mallinckrodt*, 471 F.3d at 293 (“[f]ederal courts are often called upon to make evaluative judgments in highly technical areas (patent litigation is an excellent example)”; Mitchell S. Bernard & Jared J. Thompson, *Lessons from Using RCRA to Seek an Ecosystem-Level Remediation*, 28 *GEO. ENVTL. L. REV.* 485, 494–95 (2016) (“By giving courts wide latitude to craft appropriate equitable relief, the RCRA citizen suit provision leaves courts free to adapt remedies to fit the scope of the problem[,] and citizens should not hesitate to consider using RCRA even in the face of seemingly massive, longstanding endangerments”).

149. Bernard & Thompson, *supra* note 148, at 494.

150. 42 U.S.C. § 6972(a).

151. *Burlington N. & Santa Fe Ry. Co. v. Grant*, 505 F.3d 1013, 1020 (10th Cir. 2007).

152. *Compl.*, *supra* note 3, ¶ 186.

153. *Id.* ¶ 185.

154. *Mem. CLF*, *supra* note 4, at 12–15.

elements,¹⁵⁵ CLF alleges that ExxonMobil is a “generator” of “hazardous waste,” which the company does not dispute.¹⁵⁶

3. ExxonMobil’s Response

In response, ExxonMobil characterizes the prospects of sea level rise, flooding, and extreme weather as “latent risks” that are “remote in time” or “speculative in nature.”¹⁵⁷ The company accuses CLF of relying on “generalized predictions, forecasts, and projections about climate change, none of which are immediate or relate specifically to the potential effects of climate change on the Terminal, let alone any such effects during the five-year term” of the water quality permit and spill prevention plan.¹⁵⁸

4. CLF’s Rebuttal and Other Arguments

CLF rebuts by invoking “the *fact* of increased frequency and variability” of extreme weather, which ExxonMobil knew about since the 1970s.¹⁵⁹ CLF also cites a recent letter ExxonMobil sent the EPA, stating: “Given the Terminal’s location, a security incident [like a terrorist attack] leading to a release at the Terminal would likely have catastrophic effects on both human life and the environment.”¹⁶⁰ Another rebuttal could be that the permit’s time limit should not blindfold either regulators or regulated entities to longer-term realities. Despite the five-year duration of the NPDES permit, ExxonMobil likely expects its facility to last for far more than five years. Indeed, the terminal has been operating since 1965.¹⁶¹

155. The analysis here assumes that ExxonMobil “has contributed” or “is contributing” to the handling of waste, in order to focus on the question of “imminent endangerment” in the context of climate change. For a discussion of whether courts analyze this contribution element under strict liability, see Erin Guffey, *RCRA Liability: Not Strict in Application*, NAT. RESOURCES & ENV’T, Winter 2014, at 46 (“Multiple circuits and the legislative history have stated that RCRA provides for strict liability. Yet, in practice, courts are not so strict. In the attempt to define the ‘has contributed’ or ‘is contributing’ element, courts examine persons’ affirmative actions and/or control exercised with respect to the relevant waste, and as a result, fundamentally change the strict application of RCRA to a framework that considers intent.”); Michael F. Hearn, *One Person’s Waste Is Another Person’s Liability: Closing the Liability Loophole in RCRA’s Citizen Enforcement Action*, 42 MCGEORGE L. REV. 467, 475 (2011).

156. Compl., *supra* note 3, ¶¶ 172–73.

157. See Mem. Def., *supra* note 75, at 26.

158. *Id.*

159. Mem. CLF, *supra* note 4, at 16–17.

160. Exhibit F, Case 1:16-cv-11950-MLW, ECF No. 21-6, at 5 (Dec. 20, 2016); Mem. CLF, *supra* note 4, at 17.

161. Compl., *supra* note 3, ¶ 33. CLF elaborates on this issue in its case against Shell. See CLF Shell Am. Compl., *supra* note 17; Mem. of Law in Supp. of Conservation Law Foundation’s Objection to Defs.’ Mot. to Dismiss, Case 1:17-CV-00396, ECF No. 24, at 45 (Feb. 12, 2018) (“[N]o honest argument can be made that Shell constructed its Terminal with an intention to only operate it for five years and had no intention of operating beyond the term of a single permit; one only has to look at Shell’s pending application to extend the Permit to conclude that is not a serious argument. And while it

CLF appears to have the stronger RCRA arguments, given how broadly courts have read RCRA's "imminent and substantial endangerment" provision.¹⁶² But ExxonMobil's seemingly strongest argument, to which CLF does not respond, is that the company is under no obligation to take "immediate action" to address the threats of sea level rise and flooding of the terminal.¹⁶³ In support, ExxonMobil cites *Price v. United States Navy*¹⁶⁴ as "holding that imminent and substantial endangerment requires some necessity for action to address the threat now."¹⁶⁵ But ExxonMobil misinterprets *Price*. Given its pincite and emphasis on the word "now," ExxonMobil seems to rely on the following language: "The RCRA [imminent and substantial endangerment] provision implies that there must be a threat which is present *now*, although the impact of the threat may not be felt until later. Also, endangerment must be substantial or serious, and there must be some necessity for the action."¹⁶⁶ The *Price* court did not say, as ExxonMobil seems to suggest, that plaintiffs must show that the "necessity for the [defendant's] action" must be immediate, but simply that the *threat* must be present. ExxonMobil's interpretation seems inconsistent with RCRA's language and judicial constructions of it.¹⁶⁷

E. CLEAN WATER ACT

1. Background

A central feature of the Clean Water Act is the National Pollution Discharge Elimination System.¹⁶⁸ Regulated entities, like ExxonMobil, who discharge pollutants into certain waterways must have a NPDES permit.¹⁶⁹ The purpose of ExxonMobil's NPDES permit for the Everett terminal is to limit the facility's discharges to a pre-determined numerical level in order to preserve the "water

is true that NPDES permits are statutorily limited to five-year terms, . . . permits are commonly expired and administratively continued for years, and in some cases, nearly indefinitely It is simply not true that permits are reevaluated on a consistent five-year schedule.").

162. See *supra*, Part III.D.1.

163. Mem. Def., *supra* note 75, at 27.

164. 39 F.3d 1011, 1019 (9th Cir. 1994).

165. Mem. Def., *supra* note 75, at 27.

166. *Price*, 39 F.3d at 1019.

167. See generally *RCRA citizen suits—Introduction*, 1 RCRA AND SUPERFUND: A PRACTICE GUIDE, 3d § 5:31 (2017) (RCRA § 7002(a)(1)(B) "does not require a showing of actual immediate harm, but only the risk of threatened harm").

168. CWA § 402, 33 U.S.C. § 1342; see also Compl., *supra* note 3, ¶¶ 24, 44–45. "Under the [federal] NPDES program, most states take over the permitting of industry and municipal polluters, requiring polluters to discharge in conformity with federal regulations and dictating acceptable levels of pollution by categories of sources. State laws and regulations tailor that federal program to dovetail with other state law structures and requirements." William W. Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547, 1565–66 (2007).

169. ExxonMobil's permit for the Everett terminal is EPA NPDES Permit No. MA0000833, as modified on October 12, 2011, <https://www3.epa.gov/region1/npdes/permits/2011/finalma0000833/permitmod.pdf> [hereinafter Permit].

quality standards” established by Massachusetts for the “receiving waters” (the Island End and Mystic Rivers).¹⁷⁰

The CWA also requires ExxonMobil to have specific plans to manage stormwater and to prevent oil spills. Under the NPDES permit, ExxonMobil must “develop, implement, and maintain a Storm Water Pollution Prevention Plan (SWPPP) designed to reduce, or prevent, the discharge of pollutants in storm water to the receiving waters.”¹⁷¹ The permit also “incorporates spill prevention and response procedures,” including a Spill Prevention, Control, and Countermeasures (SPCC) Plan to minimize the likelihood or consequences of any oil spills, as required under 40 C.F.R. § 112, Subpart A.¹⁷² Those regulations also require ExxonMobil to have a Facility Response Plan (FRP) in preparation for worst-case scenarios.¹⁷³

In the claims discussed below, CLF focuses on regulations governing SWPPPs (stormwater pollution prevention) and SPCCs (spill prevention and control). Additionally, the amended complaint adds a few alleged problems with ExxonMobil’s FRP (worst-cases plan).

2. CLF’s Claims

CLF’s claims focus on climate risks to the Everett terminal from “sea level rise, increased precipitation, increased magnitude and frequency of storm events, and increased frequency and magnitude of storm surges.”¹⁷⁴ CLF alleges the following:

- ExxonMobil’s SWPPP fails to include “information documenting, or plans to address, climate change induced risks.”¹⁷⁵
- ExxonMobil certified the permit without disclosing—and without writing and implementing its SWPPP and SPCC based on—information about climate change-induced factors that the company had and relied on in its business decision-making.¹⁷⁶
- The SWPPP does not accord with “good engineering practices,” in violation of “the duty of care applicable to engineers.” Specifically, the SWPPP was

170. Compl., *supra* note 3, ¶¶ 22–29 (explaining the fundamentals of NPDES permits under the CWA).

171. *Id.* ¶¶ 61–62.

172. *Id.* ¶¶ 63–64. In practice, the term “SPCC” is often shorthand for “SPCC Plan.”

173. *Id.* ¶ 69. FRPs are authorized under CWA § 311(j)(1)(C) and implemented by 40 CFR §§ 112.20–21. See *Oil Spills Prevention and Preparedness Regulations*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations> (last visited Feb. 27, 2018).

174. See, e.g., Compl., *supra* note 3, ¶ 213.

175. See *id.* ¶¶ 211–218. Under its permit, ExxonMobil must “develop, implement, and maintain a [SWPPP] designed to reduce, or prevent, the discharge of pollutants in storm water to the . . . receiving waters.” *Id.* ¶ 212.

176. See *id.* ¶¶ 220–29. 40 CFR §§ 122.22(a)(1) and (d) require signed certification of NPDES permits by a “responsible corporate officer.”

not prepared based on information about climate impacts that was known both to “reasonably prudent engineers” and to ExxonMobil.¹⁷⁷

- ExxonMobil fails to identify climate impacts as “sources of pollution reasonably expected to affect the quality of the storm water discharges” from the terminal.¹⁷⁸
- In its wastewater treatment system, ExxonMobil has failed to “prevent and address pollutant discharges resulting from climate change-induced effects.”¹⁷⁹
- The SWPPP fails to incorporate climate impacts in its summary of pollutant sources.¹⁸⁰
- The SPCC “was not prepared in accordance with good engineering practices because it is not based on consideration of climate change information known to ExxonMobil, the petroleum industry, and to practicing engineers in Massachusetts,” and thus the SPCC “fails to include necessary discharge prevention measures.”¹⁸¹ For instance, both the SPCC and FRP fail to address “spills associated with precipitation and flooding.”¹⁸²
- ExxonMobil has failed to amend or update its SWPPP or SPCC based on climate change information known to the company.¹⁸³
- Due to its “failure to consider and act upon climate change related information, including information known to ExxonMobil,” the company failed both

177. See *id.* ¶¶ 230–35. Under its permit, ExxonMobil must prepare the SWPPP “in accordance with good engineering practices.” *Id.* ¶ 231 (quoting the Permit, Part I.B.4, p. 13); see also U.S. ENVTL. PROT. AGENCY, MULTI-SECTOR GENERAL PERMIT (MSGP) FOR STORMWATER DISCHARGES, at 5.1, 30, https://www.epa.gov/sites/production/files/2015-10/documents/msgp2015_finalpermit.pdf (“The SWPPP shall be prepared in accordance with good engineering practices and to industry standards”). SPCCs also must be prepared “in accordance with good engineering practices.” 40 C.F.R. § 112.7; see also Bill Jeffery, *Oops!—Accidents Happen: Oil Pollution Prevention at Onshore Production Facilities*, 49 WASHBURN L. J. 493, 518 (2010). The “good engineering practices” standard also arises in the context of other laws—for instance, the Clean Air Act. See, e.g., *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. Ruckelshaus*, 719 F.2d 1159, 1165 (D.C. Cir. 1983) (construing, in part, the Clean Air Act § 207(b)(ii), 42 U.S.C. § 7541(b)(ii), which requires that certain emissions tests be “in accordance with good engineering practices”).

178. See Compl., *supra* note 3, ¶¶ 236–39. Under its permit, ExxonMobil’s SWPP must “identify potential sources of pollution that may reasonably be expected to affect the quality of the storm water discharges.” *Id.* ¶ 237.

179. See *id.* ¶¶ 241–43. Under its permit, ExxonMobil’s SWPP must “describe and ensure implementation of practices which will be used to reduce the pollutants and assure compliance with this permit.” *Id.* ¶ 241.

180. See *id.* ¶¶ 245–49. Under its permit, ExxonMobil’s SWPP must contain a “summary of all pollutant sources,” identifying “the expected drainage and the corresponding pollutant” for each source, and including as sources “all areas where spills have occurred or could occur.” *Id.* ¶ 245.

181. See *id.* ¶¶ 64–68, 251–73. CLF alleges that climate impacts “can reasonably be expected to cause or contribute to the discharge of oil in quantities that may be harmful to receiving waters in violation of the SPCC regulations [40 CFR § 112, Subpart A)], the SWPPP, and the Permit.” Under 40 C.F.R. § 112.3(d), SPCCs must be certified by a “licensed Professional Engineer.”

182. See Am. Compl., *supra* note 78, ¶¶ 306–07, 309.

183. See Compl., *supra* note 3, ¶¶ 275–77. Under its permit, ExxonMobil must “amend and update the SWPPP . . . for any changes at the facility affecting the SWPPP . . . includ[ing but] not limited to [a] change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants.” *Id.* ¶ 275. CLF cites 40 C.F.R. § 112.5 (2018) as establishing a similar requirement for SPCCs.

to “properly operate and maintain” the terminal and to “take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment.”¹⁸⁴

3. ExxonMobil’s Response

ExxonMobil argues that CLF is effectively trying to “rewrite” the permit and even the SWPPP and SPCC regulations, because neither the permit nor those regulations—nor the EPA’s interpretations of those regulations (to which ExxonMobil argues the courts owe deference)—require consideration of climate change.¹⁸⁵ Raising the “permit shield”—the notion that compliance with a NPDES permit is deemed compliance with the CWA—ExxonMobil argues that a CWA citizen suit may only target a permittee that “discharges pollutants in excess of the levels specified in the permit’ or otherwise fails to comply with the permit’s conditions.”¹⁸⁶ ExxonMobil also argues CLF is collaterally challenging the permit itself when it argues the permit’s alleged “failure to mandate consideration of speculative climate change risks”—which CLF only could have done during the comment period for the permit, not in an enforcement action.¹⁸⁷

In terms of administrative interpretations, ExxonMobil argues that neither the EPA’s NPDES Permit Writers’ Manual¹⁸⁸ nor its SWPPP and SPCC guidance materials¹⁸⁹ or regulations require the kinds of consideration of climate impacts for which CLF argues.¹⁹⁰ Of the interpretive documents it discusses, ExxonMobil argues climate change only appears in the Permit Writers’ Manual and in a context inapplicable to the terminal.¹⁹¹ The company also argues that the EPA does not require NPDES permittees to account for climate change “because the agency has not yet determined a method by which this

184. *See id.* ¶¶ 278–81. Under 40 C.F.R. § 122.41(e), permittees must “at all times properly operate and maintain all facilities and systems of treatment and control . . . installed or used . . . to achieve compliance with the [permit] conditions,” and under § 122.41(d), permittees must “take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment.”

185. Mem. Def., *supra* note 75, at 10, 28–33.

186. *Id.* at 19 (quoting *NRDC v. Cty. of Los Angeles*, 725 F.3d 1194, 1204 (9th Cir. 2013)).

187. *Id.* at 21 (citing *Palumbo v. Waste Techs. Indus.*, 989 F.2d 156, 159 (4th Cir. 1993)).

188. U.S. ENVTL. PROT. AGENCY, EPA-833-K-10-001, NPDES PERMIT WRITERS’ MANUAL §§ 5.2.2.7, 6.2.4.2 (Sept. 2010), https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf.

189. *See* U.S. ENVTL. PROT. AGENCY, DEVELOPING YOUR STORMWATER POLLUTION PREVENTION PLAN (Feb. 2009), https://www3.epa.gov/npdes/pubs/sw_swppp_guide.pdf; U.S. ENVTL. PROT. AGENCY, MULTI-SECTOR GENERAL PERMIT (MSGP) FOR STORMWATER DISCHARGES, https://www.epa.gov/sites/production/files/2015-10/documents/msgp2015_finalpermit.pdf; U.S. ENVTL. PROT. AGENCY, Office of Emergency Mgmt., SPCC GUIDANCE FOR REGIONAL INSPECTORS (Dec. 16, 2013), https://www.epa.gov/sites/production/files/201404/documents/spcc_guidance_fulltext_2014.pdf.

190. *See* Mem. Def., *supra* note 75, at 6–8.

191. *Id.* at 7.

could or should be done.”¹⁹² Finally, ExxonMobil argues that to the extent other agencies have incorporated climate risks into their water-related planning—the U.S. Army Corps of Engineers and Boston’s Deer Island Sewage Treatment Plant, mentioned in CLF’s complaint¹⁹³—they have done so at their discretion and “in the context of civil and municipal works projects with lifespans far in excess of the five-year term applicable to NPDES permits and SPCCs.”¹⁹⁴

4. CLF’s Rebuttal and Other Arguments

In rebuttal, CLF argues that it is only seeking to enforce ExxonMobil’s permit, not to rewrite it. The CWA’s citizen suit provision authorizes suits against any person allegedly violating “an effluent standard or limitation,” which the CWA defines as “a permit or condition thereof,” and CLF’s CWA claims all refer to terms in ExxonMobil’s permit.¹⁹⁵ CLF argues that the various regulatory provisions on which it relies reasonably require consideration of a problem like climate change, even if those provisions do not explicitly mention climate change.¹⁹⁶

Another straightforward rebuttal on this point is available. ExxonMobil’s *expressio unius* argument—that absence of “climate change” in the regulations means those regulations do not require consideration of climate change—fails because the regulations are inherently expansive. They cannot—and do not attempt to—name all of the kinds of problems NPDES permittees must address in their SWPPs and SPCCs. Thus, absence of the name of any given environmental threat does not reasonably mean that the EPA intended permittees not to consider that threat.

CLF again plays the ExxonMobil-knew card by citing a public statement the company made in 2012, in which it recognized that “‘good engineering practices’ must include consideration of ‘severe flooding’ and ‘severe precipitation

192. *Id.* at 23 (citing EPA as stating, in Mem., CLF v. EPA, C.A. No. 10–11455–MLW (D. Mass.), Sept. 21, 2012, at 27–28, that it cannot “be faulted for refraining from guess[work]” about how to incorporate climate change into calculations of total maximum daily loads for pollutants until “science can support assumptions about [those] effects”).

193. See Compl., *supra* note 3, ¶¶ 164–68. The U.S. Army Corps of Engineers has issued at least three climate-related regulations: Engineering and Construction Bulletin 2016-25, Guidance for Incorporating Climate Change Impacts to Inland Hydrology in Civil Works Studies, Designs, and Projects (2016); Engineer Technical Letter 1100-2-1, Procedures to Evaluate Sea Level Change: Impacts, Responses and Adaptation (2014); and Engineer Regulation 1100-2-8162, Incorporating Sea Level Change in Civil Works Program (2013). See *Legal Resources for Climate Change Adaptation*, SABIN CENTER FOR CLIMATE CHANGE LAW, <http://columbiaclimatelaw.com/resources/adaptation-database> (last visited Feb. 27, 2018).

194. Mem. Def., *supra* note 75, at 8 (citing CLF’s complaint ¶ 168). The “planned life” of Boston’s sewage treatment extends to 2050.

195. Mem. CLF, *supra* note 4, at 26 (citing 33 U.S.C. § 1365(f)(6)). The permit requires a SWPPP. Compl., *supra* note 3, ¶¶ 61–62. Also, ExxonMobil incorporated its SPCC as a condition of its NPDES permit. Mem. CLF, *supra* note 4, at 26.

196. See *id.* at 20 n.20 (citing Hudson Riverkeeper Fund, Inc. v. Orange & Rockland Utilities, Inc., 835 F. Supp. 160 (S.D.N.Y. 1993) (accepting the plaintiff’s interpretation of the expansive term “best technology available”)).

events.”¹⁹⁷ So, not only do Army Corps and Boston engineers account for climate change, so apparently do ExxonMobil’s engineers. As for the mention of “climate change” in the NPDES Permit Writers’ Manual, CLF argues that the EPA was merely offering some examples without foreclosing others.¹⁹⁸ Although CLF does not put it this way, it is countering another attempt by ExxonMobil to make an *expressio unius* argument (absence of an explicitly articulated concept in the NPDES manual means the EPA intended not to include that concept).

5. Bringing Home the Importance of CLF’s Novel Claims

CLF’s central argument under the CWA—that the structural protections at the Everett terminal fall short because ExxonMobil’s engineers failed to adequately incorporate climate change impacts—is novel. So, it is difficult to predict how the courts will respond to CLF’s application of 1970’s-era pollution control statutory standards to the dynamic and manifold problems of climate change.

To take one of the standards as an example, courts may or may not find that incorporating climate change in water protection infrastructure rises to the level of “good engineering practices” under the CWA and its regulations. Compounding that uncertainty is the fact that “good engineering practices” is inherently amorphous.¹⁹⁹ Apparently, the rule writers wanted it that way to avoid restricting engineers to potentially outdated industry norms.²⁰⁰ Maybe courts will

197. *Id.* at 20.

198. *Id.* at 21–22.

199. See *City of N.Y. v. Anglebrook Ltd. P’ship*, 891 F. Supp. 908, 915 (S.D.N.Y.), *aff’d*, 58 F.3d 35 (2d Cir. 1995) (holding that a state-issued general NPDES permit, which required SWPPPs to be prepared in accordance with “good engineering practices,” established “flexible rules which contemplate—and indeed require—applicants to exercise good engineering practices, informed by professional judgement and common sense”); Wendy E. Wagner, *Stormy Regulation: The Problems That Result When Stormwater (and Other) Regulatory Programs Neglect to Account for Limitations in Scientific and Technical Information*, 9 CHAP. L. REV. 191, 216 n.119 (2006) (suggesting that “good engineering practices” and other, similarly broad language “gives facility operators . . . wide latitude in determining compliance”); Richard J. Lazarus, *Meeting the Demands of Integration in the Evolution of Environmental Law: Reforming Environmental Criminal Law*, 83 GEO. L. J. 2407, 2503 (1995) (mentioning “environmental standards that prosecutors believed were so indeterminate—for example, good engineering practices—that they did not readily lend themselves to a criminal prosecution”).

200. See Philip Myers, *Revised SPCC Rules Require Use of Industry Standards: But Which Ones? PEs to Play Important Role at Facilities*, 11 ABOVEGROUND STORAGE TANK GUIDE NEWSL. 3 (April 2002) (“The proposed SPCC rules [Oil Pollution Prevention Regulation (40 CFR Part 112)] do not actually mention any industry standards by name, although the preamble does refer to specific examples. EPA’s explanation for not specifying standards in the proposed revisions is that standards come and go, become obsolete and get replaced by new ones.”) (“PE” in the title means “professional engineer.”) Indeed, current engineering standards do not seem to require incorporation of climate change, given various calls for making climate-aware engineering an industry-wide norm. See, e.g., Rob Lawlor & Helen Morley, *Climate Change and Professional Responsibility: A Declaration of Helsinki for Engineers*, 23 SCI. & ENGINEERING ETHICS 1247, 1431 (2017) (arguing that professional engineering institutions should develop a “Declaration of Climate Action”); Lauren M. Cook et al., *Framework for Incorporating Downscaled Climate Output into Existing Engineering Methods: Application to Precipitation Frequency Curves*, 23 J. OF INFRASTRUCTURE SYS. 04017027-1, 1 (2017) (arguing that

decide that the climate risks are so high that any reasonably prudent engineer working today would address climate change in her planning.²⁰¹ If so, then litigants have another valuable tool in their toolbox. If not, then maybe these laws and regulations are due for an update.

F. CLF'S REQUESTED RELIEF: ADEQUATE ADAPTATION AT EVERETT TERMINAL

CLF wants the court to make ExxonMobil properly adapt the Everett terminal to climate change.²⁰² In other words, CLF seeks certain injunctive relief.²⁰³ In the "relief requested" section of its complaint, CLF does not spell out what actions it wants ExxonMobil to take.²⁰⁴ CLF generally asks for "injunctive relief [under] § 7002 of RCRA, 42 U.S.C. § 6972, ordering ExxonMobil to perform and pay for such work as may be required to respond to the hazardous waste and solid waste present at the Everett Terminal and restraining ExxonMobil from further violating RCRA" and "declaratory and injunctive relief to prevent further violations of the Clean Water Act pursuant to §§ 505(a) and (d) of the CWA, 33 U.S.C. § 1365 (a)."²⁰⁵

However, other parts of CLF's complaint, and some of the expert affidavits, describe specific adaptation measures appropriate for the Everett terminal. For instance, when criticizing ExxonMobil's Spill Prevention, Control, and

"particularly for long-lived infrastructure, current engineering practice must be updated to incorporate a range of future climate conditions that are likely to be different from the past"); U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-17-3, IMPROVED FEDERAL COORDINATION COULD FACILITATE USE OF FORWARD-LOOKING CLIMATE INFORMATION IN DESIGN STANDARDS, BUILDING CODES, AND CERTIFICATIONS (Nov 30, 2016), <https://www.gao.gov/products/GAO-17-3>; WORLD FED'N OF ENG'G ORGS, COMM. ON ENG'G & THE ENV'T, MODEL CODE OF PRACTICE: PRINCIPLES OF CLIMATE CHANGE ADAPTATION FOR ENGINEERS (2015), <http://www.wfeo.org/climatechangeadaptation>. But the fact that climate-conscious engineering may not yet be a universally accepted norm need not preclude it from being a "good engineering practice" under the CWA, at least according to the expansive interpretations of "good engineering practice" discussed *supra* note 199.

201. See Compl., *supra* note 3, ¶ 162 ("Engineers working in the oil and gas industry and other major infrastructure projects along the coastal United States customarily take future climate change impacts into account throughout their planning, decision-making, and project construction and design processes"); *id.* ¶ 163 ("Engineers exercising skill and judgment reasonably expected of similarly situated professionals make planning and design decisions based on information regarding climate change-induced impacts").

202. See *id.* ¶ 295. CLF also seeks "civil penalties," *id.* ¶ 295(c), meaning it wants ExxonMobil to pay money to the U.S. Treasury as one of the consequences for violating federal law. A major purpose of civil penalties is to deter such violations. See James T. Lang, *Citizens' Environmental Lawsuits*, 47 TEX. ENVTL. L. J. 17, 31–36 (2017).

203. See Compl., *supra* note 3, ¶ 295(a)–(b). Traditionally, to win a permanent injunction, a plaintiff must show "(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction." *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 156–57 (2010).

204. See Compl., *supra* note 3, ¶¶ 295(a)–(b).

205. *Id.*

Countermeasures (SPCC) plan, CLF suggests that ExxonMobil's plan must ensure that the walls and floors of entire containment systems are spill-proof, and that the plan must "address the typical failure mode associated with climate change-induced or affected factors and the most likely quantity of oil that would be discharged."²⁰⁶ One of CLF's experts outlines a prudent approach: "The court should [require] ExxonMobil to assess the vulnerabilities of the Everett terminal in light of climate change, develop engineering design plans to adequately address those vulnerabilities, and ultimately implement measures that will protect Everett and other surrounding communities from contamination from this terminal."²⁰⁷

1. Possible Challenges to CLF's Requested Injunctions

ExxonMobil's flawed *Price* logic—that RCRA requires a present necessity of remedial measures²⁰⁸—raises a colorable argument against the kind of injunctive relief CLF seeks. Even if CLF can convince a court that sea level rise, stronger storms, flooding, and related climate risks are "imminent" under RCRA, the court might wonder, as a policy matter, why it should order a defendant to take *immediate* action to address a threat that is growing over time.

There are several possible responses to this concern. For one thing, the law does not require plaintiffs to show a need for immediate action. Additionally, it is critical that defendants like ExxonMobil act promptly because of the combined threats of sea level rise and stronger storms and hurricanes. Even in the earlier stages of climate change when the water is at lower levels, a climate-change-boosted hurricane or other extreme weather event can still wreak havoc. Indeed, the district court partially denied ExxonMobil's motion to dismiss precisely because CLF plausibly asserted a "'substantial risk' that severe weather events, such as storm surges, heavy rainfall, or flooding, will cause the terminal to discharge pollutants into those areas in the near future and while the Permit is in effect."²⁰⁹

Another resolution could be to require ExxonMobil or some other entity to prepare a study detailing actions the company could take over time to maintain an adequate level of protection against the growing threats. This idea comes from the landmark case, *Maine People's Alliance v. Mallinckrodt*, in which high levels of mercury in Maine's Penobscot River spurred a citizen group to sue owners of a chemical plant under RCRA.²¹⁰ The group's principal request for relief—which the court granted²¹¹ and an appellate court upheld²¹²—was that the corporate

206. *Id.* ¶¶ 270–71.

207. Compl. Ex. K, ¶ 18.

208. See *supra*, text accompanying notes 170–72.

209. Order, *supra* note 77, at 2.

210. See *Maine People's All. v. Mallinckrodt, Inc.*, 471 F.3d 277 (1st Cir. 2006).

211. *Maine People's All. v. HoltraChem Mfg. Co., LLC*, No. 1:00-CV-00069, 2015 WL 5155573, at *2–3 (D. Me. Sept. 2, 2015).

212. *Mallinckrodt*, 471 F.3d at 297–98.

defendants be required to fund a study to better understand the contamination.²¹³ The court even “appointed an independent, three-member scientific ‘Study Panel’ and charged them with answering various questions about the nature and extent of the mercury contamination and the need for and feasibility of a remediation plan.”²¹⁴ Likewise, in CLF’s case, the court could appoint a scientific or engineering panel to assess the Everett terminal’s climate readiness and produce an adaptation plan to fill any gaps.

Finally, another likely obstacle for plaintiffs in a suit like this is the cost of adaptation for the defendant. In *Mallinckrodt*, for instance, the court could “imagine circumstances in which the expense entailed in carrying out a particular remedial plan might dwarf the potential benefits to the environment or to human health.”²¹⁵ Defendants in ExxonMobil’s position would almost certainly argue that high costs should preclude requiring measures to adapt to sea level rise that may not fully manifest for decades. These arguments are in the same vein as many of the arguments already discussed above. Nonetheless, the *Mallinckrodt* appellate court upheld an order requiring a study, even absent a cost-benefit analysis.²¹⁶

IV. CONCLUSION

Everett and Chelsea are far from unique in being threatened by industrial facilities ill-prepared for climate change.²¹⁷ At least as of 2015, the EPA reported more than 26,000 “hazardous waste generators, managers, shippers, and receivers” across the country.²¹⁸ In all likelihood, a significant number of those entities are susceptible to climate impacts but have underinvested in climate adaptation, needlessly putting nearby communities at risk.²¹⁹

213. Bernard & Thompson, *supra* note 148, at 491.

214. *Id.*

215. *Mallinckrodt*, 471 F.3d at 297.

216. *Id.* (“[W]e perceive a congressional thumb on the scale in favor of remediation[, and] we are unwilling to say that the district court abused its discretion either by starting with the proposition that its primary concern ought to be how best to remedy a potentially serious near-term environmental hazard or by granting relief notwithstanding the absence of a showing that the remedy’s demonstrable benefits exceeded its probable costs”).

217. See Burger & Gundlach, *supra* note 10, at 23 (“[C]oastal terminals like the one in Everett are a commonplace”).

218. U.S. ENVTL. PROT. AGENCY, BIENNIAL REPORT SUMMARY (2015), <https://rcrainfo.epa.gov/rcrainfoweb/action/modules/br/summary/view> (providing, through the latest “report cycle” ending in 2015, “the number of hazardous waste generators, managers, shippers, and receivers and the total quantity, in tons, of hazardous waste generated, managed, shipped, and received for each of the 58 U.S. States and Territories, as well as national totals, for the reporting year specified”).

219. See David Flores, *Climate Change Threatens Communities with Dangerous Spills and Contamination from Nearby Industrial Facilities*, CPRBLOG (Oct. 18, 2016), <http://www.progressivereform.org/CPRBlog.cfm?idBlog=733A0E97-D808-9BCE-E2BFAA4E74B2B775>; Arnold, *supra* note 29, at 246 (“[C]oastal industries [are] underinvesting, in reducing the risks their operations pose in an era of climate change”).

CLF's innovative lawsuit against ExxonMobil²²⁰ provides a new approach that is worth learning from and repeating. Vulnerable communities in other areas can use this strategy to push nearby industrial operations to adequately prepare for known climate impacts. Even the prospect of these suits could prompt private entities to fortify their facilities to protect the communities they threaten—not to mention their own investments.

In addition to advancing environmental and climate justice, private adaptation litigation can serve other critical objectives. Most directly, these suits can lead to more private adaptation, which will help reduce the exorbitant costs of climate-change-fueled disasters.²²¹ It can at least “nudge”²²² businesses to take stock of their own adaptation needs and to be more transparent about them, benefitting the marketplace overall.²²³ And it can offer valuable insights both about how to adapt today's laws to the “no-analog future,”²²⁴ as well as how to apply “old statutes” to “new problems.”²²⁵

On the most practical level, given not only federal governmental “dysfunction” but also outright antipathy²²⁶ towards climate solutions, the onus is on other governmental actors—state and local governments (at all branches: legislature, executive, and judiciary), and federal courts—to do the work of adapting current laws to address the immense and increasing threats of climate change.

220. See *Conservation Law Foundation v. ExxonMobil*, Case 1:16-cv-11950 (D. Mass. 2016).

221. See *supra*, Part II.A.

222. See RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008); see also Todd Haugh, *Nudging Corporate Compliance*, 54 *AM. BUS. L. J.* 683, 689–99 (2017) (discussing the background and behavioral science behind nudging); Cass R. Sunstein, *Do People Like Nudges?*, 68 *ADMIN. L. REV.* 177 (2016).

223. See *supra*, Part II.B.

224. J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 *B.U. L. REV.* 1, 17–23 (2008).

225. See Freeman & Spence, *supra* note 64; *supra*, Part II.E.

226. See Popovich et al., *supra* note 23.