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Abstract

Last year marked the fiftieth anniversary of the Clean Water Act, the landmark federal legislation of the last century that seeks to improve human health and the environment by protecting the health of the nation's waterways. The CWA has put us squarely on the path toward cleaning up our troubled waterways, and through its early successes it created high expectations among the public that our waterways should be drinkable, fishable, and swimmable. Even so, its laudable goals and the legitimate expectations they have created are routinely frustrated by built-in limitations that lead it to focus exclusively on issues of water *quality*, with few tools to remedy the issues of water *quantity* that are also threatening the health of the nation's waters.

The CWA protects water quality by limiting the discharge of water pollution to waterways, but it lacks legal mechanisms to ensure that sufficient quantities of water actually remain instream to enable those cherished public uses of drinking, fishing, and swimming. While the CWA was a pioneering innovation in environmental law, water pollution control becomes meaningless if there is no longer a waterway to protect from pollution. This critical oversight has led some advocates to search out other means to legally protect vulnerable waterways, including the public trust doctrine and, more recently, the rights of nature movement. Advocates are turning to these less established legal

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theories of environmental protection to save waterways threatened by excessive withdrawals under state water allocation laws that operate independently of the federal CWA.

This Essay distills earlier work assessing the multi-jurisdictional development of public trust and rights of nature principles to illustrate how these approaches have responded to the inherent failures within the CWA, and perhaps more importantly, the central failure of American water governance more generally, in the disconnect between our legal treatment of water quality and quantity. It begins with a brief review of the goals and mechanics of the CWA before exploring these alternative approaches to environmental protection. It introduces the public trust doctrine, which confers certain rights in waterways and other resources to the public, and then the rights of nature movement, which assigns legal rights directly to features of the environment—especially waterways.

There are stark differences between the two, especially the contrasting anthropocentric and ecocentric environmental ethics that undergird them. Yet they showcase surprising commonalities on a pragmatic level, following similar paths of development and differentiation among the domestic and international jurisdictions that have adopted them, including the legal mechanisms by which they operate, the resources protected, and the values they serve. Also, both match occasionally disappointing results in court with more potent results through the political process, suggesting something intuitive about these principles that moves the levers of conventional politics more successfully than the tools of more established environmental law. The CWA must continue its crusade against pollution, but these alternatives highlight its inadequacy to protect waterways against threats to their very existence, especially as climate change further stresses water resources.

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INTRODUCTION

2022 marked the fiftieth anniversary of the Clean Water Act (CWA or the Act),[1] the landmark federal legislation of the last century that seeks to improve human health and the environment by protecting the health of the nation's waterways.[2] It is an anniversary well worth celebrating, because the CWA has proved a powerful tool for protecting water resources over time, especially in comparison to earlier and weaker legal efforts.[3] The CWA has put us squarely on the path toward cleaning up our troubled waterways,[4] and through its early successes, it created high expectations among the public that our waterways should be drinkable, fishable, and swimmable.[5]

Even so, the CWA's laudable statutory goals and the legitimate expectations they have created are routinely frustrated by built-in limitations that lead it to focus exclusively on issues of water *quality*, with few tools to remedy the issues of water *quantity* that are also threatening the health of the nation's waters.[6] The CWA protects water quality by limiting the discharge of water pollution to waterways, but

1. *See generally* Clean Water Act, 33 U.S.C. §§ 1251–1389 (formerly amended by Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92–240, 86 Stat. 47, then amended by Clean Water Act of 1977, Pub. L. 95–217, 91 Stat. 1566).

2. *Id.*

3. *See* Federal Water Pollution Control Act of 1948, Pub. L. No. 80–845, 62 Stat. 1155 (codified as amended at 33 U.S.C. §§ 1251–1389) (The 1977 Amendment officially acknowledged this statute as the "Clean Water Act."); *see also* Kenneth M. Murchison, *Learning from More Than Five-and-a-Half Decades of Federal Water Pollution Control Legislation: Twenty Lessons for the Future*, 32 B.C. ENV'T AFFS. L. REV. 527, 530–34 (2005) (discussing the evolution of federal water pollution legislation and highlighting the lax enforcement and limited authority for federal oversight as weaknesses in legislation prior to the CWA).

4. *See* Murchison, *supra* note 3, at 557–73 (providing an overview of the amendments, regulatory approaches, and successes of federal water pollution legislation since the CWA was enacted).

5. The CWA promised to ensure that American waterways would be drinkable, fishable, and swimmable, ideally by 1983. *See* 33 U.S.C. § 1251(a)(2) (2012) ("[I]t is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by . . . 1983."); *see also* Erin Ryan, *Federalism, Regulatory Architecture, and the Clean Water Rule: Seeking Consensus on the Waters of the United States*, 46 ENV'T. L. 277, 285 (2016) [hereinafter Ryan, *Seeking Consensus*].

6. 40 C.F.R. §§ 104–108, 110–117, 122–140, 230–233, 401–471, 501–503 (2021). A review of these regulations shows the focus of the CWA is on regulating water quality. *Id.* The few mentions of "quantity" in the CWA largely pertain to the amount of lawful or unlawful quantities of pollutants. 33 U.S.C. §§ 1251–1389.

it lacks legal mechanisms to ensure that sufficient quantities of water actually remain instream to enable those cherished public uses of drinking, fishing, and swimming. As the advocates for stressed waterways increasingly remind us, water pollution control becomes meaningless if there is no longer a waterway to protect from pollution.

The CWA was a pioneering innovation in environmental law, but this critical oversight has led some environmentalists to search out other means to legally protect vulnerable waterways, including the public trust doctrine and, more recently, the rights of nature movement. Advocates are turning to these less established legal theories of environmental protection to save waterways threatened by excessive withdrawals under state water allocation laws that operate independently of the federal CWA. This Essay distills earlier work assessing the multi-jurisdictional development of public trust and rights of nature principles to illustrate how these approaches have responded to the inherent failures within the CWA, and perhaps more importantly, how the overall trend demonstrates the central failure of American water governance more generally. That failure is the artificial disconnect that has developed between our legal treatment of water quality and water quantity, when every expert understands that they are, in fact, inextricably intertwined.

The Essay begins with a brief review of the goals and mechanics of the CWA before exploring these alternative approaches to environmental protection. It introduces the public trust doctrine, which confers certain rights in navigable waterways and related resources to the public, and then the rights of nature doctrine, which assigns legal rights to features of the natural environment directly—chief among them waterways. There are stark differences between the two, especially the contrasting environmental ethics that undergird them.[7] Like the CWA, the public trust doctrine takes a utilitarian, anthropocentric approach, focusing on the benefits waterways and other trust resources confer on the people designated as holding legally protected rights.[8] By contrast, the rights of nature movement adopts an unapologetically biocentric or ecocentric perspective, considering waterways and other natural features worthy of protection in and of themselves, without reference to human needs.[9]

Yet despite seemingly stark differences on that theoretical plane, the two approaches showcase a surprising amount in common on the pragmatic level. The public trust doctrine has been deployed as a tool of modern environmental advocacy longer than the rights of nature, but

7. *See* Erin Ryan, Holly Curry & Hayes Rule, *Environmental Rights for the 21st Century: A Comprehensive Analysis of the Public Trust Doctrine and Rights of Nature Movement*, 42 CARDOZO L. REV. 2447, 2541 (2021) [hereinafter Ryan et al., *Environmental Rights*].

8. *Id.* at 2541–48.

9. *Id.* at 2548–55.

over their respective periods of evolution, they have taken interestingly similar paths of development and differentiation among the different jurisdictions that have adopted them, both domestically and internationally. These analogous pathways of differentiation include the different legal mechanisms by which they operate, the different resources they have been held to protect, the different values that they serve, and the different underlying legal theories that give them meaning.[10]

The growing popularity of the public trust and rights of nature alternatives reflects the desperation of advocates left stranded by the CWA in their efforts to protect waterways that will cease to function ecologically if sufficient water is not left instream. Neither doctrine would supplant the CWA; environmentalists relying on public trust and rights of nature principles still need the CWA to continue its crusade against water pollution, and the statute should be updated as needed to continue this important work successfully.[11] Nevertheless, both doctrines highlight the inadequacies of conventional environmental laws, including the CWA, to protect waterways against allocation-based threats to their very existence, especially as climate change further stresses available water resources.

The Essay concludes with the observation that both the public trust doctrine and rights of nature movement have matched occasionally lackluster results in court with more potent results through the political process,[12] suggesting something intuitive about these principles that moves the levers of conventional politics more successfully than the contrasting tools of established environmental law, notwithstanding the proven track record of the CWA in litigation. Perhaps the public trust doctrine's admonition that "the river belongs to all of us," or the rights of nature movement's recognition that "the river is valuable in and of itself," speaks more powerfully to the average decision maker, and on a more emotional level, than the CWA's regulation of "total maximum daily load."[13] The architects of the next iteration of the CWA might do well to heed this lesson.

I. THE CLEAN WATER ACT

From the outset, Congress made clear that the CWA was designed to restore the nation's waters for drinking, fishing, and swimming by regulating water pollution, or limiting the introduction of previously

10. *See id.* at 2461–76 (public trust doctrine), 2506–14 (rights of nature movement).

11. *See* Dave Owen, *Field Notes from an Alternative Water Quality Reality*, 73 CASE W. RSRV. L. REV. 441, 441, 444–48 (2022) (discussing the CWA's failure to address nonpoint source pollution).

12. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2561.

13. 33 U.S.C. § 1313(d)(1).

unregulated pollutant discharges that were threatening water quality.[14] As stated in its declaration of policy, "[t]he objective of this chapter is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" by regulating pollutant discharges in pursuit of the following interim water quality goals: (1) eliminating the "discharge of pollutants into the navigable waters" by 1985; and (2) restoring water quality to "provide[] for the protection and propagation of fish, shellfish, and wildlife" and "recreation in and on the water" by 1983.[15] While the elimination of all pollutant discharges was not achieved by 1985, water regulators have made substantial progress since the introduction of the Act in 1972 and its original implementing regulations between 1973 and 1974.[16]

There are three primary mechanisms within the CWA for abating the water pollution that is the main target of the statute. First, regulators must establish discharge standards for individual pollutants, known as total maximum daily loads (TMDLs), which limit the collective discharge of a regulated pollutant into an impaired waterway by all known dischargers.[17] Second, regulators set performance standards for dischargers to follow, which are tailored to the toxicity of specific pollutants. These include "best practicable control technology currently available" standards (BPT) to curb conventional pollutants and "best available technology economically achievable" standards (BAT) to manage especially toxic pollutants.[18]

Finally, the statute creates the National Pollutant Discharge Elimination System (NPDES), which imposes a permitting system on all pollutant discharges into regulated waterways from a "point source"—a discrete and discernible conveyance—thereby facilitating enforcement of the first two mechanisms.[19] The NPDES program regulates conventional "end-of-pipe" discharges from factory-like polluters and even the discharge of private or municipal stormwater pollution when collected by storm sewers before being deposited through a discrete conveyance mechanism into navigable waterways.[20] Notably, the NPDES program does not apply to most agricultural or silvicultural activities, or other "nonpoint" sources of pollution, which

14. *See* Ryan, *Seeking Consensus, supra* note 5, at 285.

15. 33 U.S.C. § 1251(a).

16. 40 C.F.R. §§ 104–108, 110–117, 122–140, 230–233, 401–471, 501–503 (2021).

17. 33 U.S.C. § 1313(c)–(d).

18. *Id.* §§ 1311(b)(2), 1314(b)–(c).

19. *Id.* § 1342(a).

20. *Id.* (separately regulating stormwater pollution under section 1342(p)).

remain largely left to state regulation.[21] Because these also represent a substantial source of water pollution, the CWA was amended in 1987 to include a federal grant program to help support state and local efforts to reduce nonpoint source pollution.[22]

In its statutory statement of CWA goals and policies, Congress affirmed that federal regulators should work together with their state counterparts toward the shared goal of protecting water quality within an interlocking program of cooperative environmental federalism,[23] but CWA regulations firmly supplanted contrary state laws and would preempt state efforts to weaken them.[24] By contrast, the regulation of water *quantity*—determining how much water will actually remain within a regulated waterway—takes place almost entirely through the vehicle of state water allocation laws, which was left exclusively to the states.[25] State water allocation laws, based on common law principles that originated in England and have been judicially and legislatively refined over the course of American history, are the means by which state and local governments determine how much water may be removed from a waterway for agricultural, commercial, and domestic uses.[26] These laws largely determine whether sufficient water remains

21. *See, e.g.*, CATHERINE JANASIE, NAT'L SEA GRANT L. CTR., FACT SHEET NSGLC-18-06-02D, THE MANAGEMENT OF NONPOINT SOURCE POLLUTION UNDER THE CLEAN WATER ACT (2018) ("The statute does not define nonpoint source; therefore, a nonpoint source is simply anything that does not fit within the definition of point source. Thus, if runoff from an agricultural field does not enter a waterbody directly, such as being directly discharged from a discrete conveyance like a pipe, but rather reaches the waterbody in a diffuse manner, it does not require a point source permit under the NPDES program.").

22. 33 U.S.C. § 1329(h); *see also 319 Grant Program for States and Territories*, EPA, https://www.epa.gov/nps/319-grant-program-states-and-territories [https://perma.cc/Q2WX-P2GY] (July 18, 2022).

23. In the 1972 amendments, the federal government assumed a dominant role in water pollution control without totally displacing state authority. 33 U.S.C. § 1251(b) (declaring in part that the goals and policy of the CWA are "to recognize, preserve, and protect the primary responsibilities and rights of States to prevent, reduce, and eliminate pollution"); *see also* Erin Ryan, *Negotiating Federalism*, 52 B.C. L. REV. 1, 64–65 (2011) (illustrating cooperative federalism built into the CWA with the states' authority to set water quality standards in the TMDL program, while the EPA retains final approval authority).

24. The Act does make clear that states may independently adopt water quality standards that do not undermine federal standards. *See* 33 U.S.C. § 1370 (granting express authority to States to adopt pollution standards at least as stringent as federal standards).

25. *See generally* 33 U.S.C. §§ 1251–1389. *See also id.* § 1251(g).

26. *See* Erin Ryan, *A Short History of the Public Trust Doctrine and Its Intersection with Private Water Law*, 38 VA. ENV'T L.J. 135, 183 (2020) [hereinafter Ryan, *A Short History*].

instream to support the ecological, navigational, aesthetic, and recreational functions of a waterway and to dilute polluting discharges to within permissible limits under the CWA's mandated TMDLs, but no part of the Act specifically preempts state water allocation laws.[27]

The CWA was never partnered with a federal statute to regulate water quantity issues for reasons that mix elements of history, tradition, and jurisdiction with elements of pure practicality. The states have long been the arbiters of water use within their boundaries, and the federal Commerce Clause authority that underlies the CWA would have to reach even further into already contested constitutional territory to support federal intervention.[28] Moreover, there is no readily available model for national intervention, given the variety of allocation principles in use nationwide. The fifty states each have their own systems of water allocation law, all tailored to their distinctive regional geographic and demographic circumstances.[29] While the eastern states mostly follow variations of the British commons riparian rights model, the western states have largely adopted the first-in-time model of appropriative rights, and there are differences between states even within each system.[30] With few shared principles of allocation, neither Congress nor the Supreme Court has shown much appetite to resolve interstate water disputes by setting forth national rules or uniform standards.[31]

Nonetheless, as pressure on water resources quickly escalates, the relationship between water quantity and water quality grows ever clearer, as does the need to more meaningfully integrate their legal regulation. Implemented properly, the CWA's primary mechanisms offer powerful tools for improving water quality, but the familiar refrain of water management—"the solution to pollution is (very often) dilution"—highlights the importance of maintaining sufficient water quantity instream to the overall water quality project. Most obviously, ensuring sufficient volume of water in the waterway helps disperse the inevitable pollutants that cannot be wholly eliminated from civilization, from treated sewage to sedimentation, in pursuit of designated water quality goals.

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27. *See id.* at 182; 33 U.S.C. § 1370.

28. Such a move would amplify the existing debate over the reach of federal CWA authority under the Waters of the United States. *See, e.g.*, Ryan, *Seeking Consensus, supra* note 5, 278–80, 290, 292, 309–10.

29. *See* Ryan, *A Short History*, *supra* note 26, at 182.

30. *Id.* at 183–91.

31. *See* Catherine Danley, *Water Wars: Solving Interstate Water Disputes Through Concurrent Federal Jurisdiction,* 47 ENV'T L. REP. NEWS & ANALYSIS 10980, 10987 (2017) (presenting in part the federalism problems that continue due to the Supreme Court's reliance on state compacts and special masters to handle interstate water disputes).

Yet the need to protect water quantity goes beyond merely ensuring sufficient water to dilute pollution—we must also ensure that sufficient water remains in a waterway for there to *be* an actual waterway. If there is not enough water in the waterways, then we are not protecting the physical, biological, or chemical integrity of the water, as Congress charged us under the CWA. But in the entire statute, perhaps only one section specifically protects waterways *as* waterways, rather than just protecting the water within them: Section 404 protects wetlands by prohibiting the discharge of fill that would eliminate them as a standing body of water.[32] Even then, Section 404's protection is weak at best, and ongoing efforts to reduce its jurisdictional scope cast doubt on its efficacy over time.[33]

In the end, the CWA is a necessary but insufficient tool for protecting threatened waterways, limited by its own design. The statute charges us with protecting the nation's waters for drinking, fishing, and swimming, but we simply cannot accomplish that if there is insufficient water left instream. If there's no water in the waterway, there no longer *is* a waterway from which we can drink, or fish, or swim.

The problem comes into even starker relief as demands on water resources escalate nationwide. Population growth in both urban and exurban areas has increased issues of water stress,[34] leading to decades-long interstate water disputes not only in the arid West[35] but even the

32. CWA § 404, 33 U.S.C. § 1344 (prohibiting pollutant discharges, including sediments, into regulated waters without a section 404 permit; section 404 enables those with permits from the Army Corps of Engineers to deposit fill into jurisdictional wetlands according to the following policies: (1) avoiding filling wetlands, (2) minimizing adverse impacts to wetlands when filling is unavoidable, and (3) providing compensatory mitigation for any hardship left after 1 and 2).

33. *See* Ryan, *Seeking Consensus, supra* note 5, at 286–89 (examining the nuances of wetland protection under the CWA and the importance of jurisdictional designation for effective regulation); Robin Kundis Craig, *There Is More to the Clean Water Act than Waters of the United States: A Holistic Jurisdictional Approach to the Section 402 and Section 404 Permit Programs*, 73 CASE W. RSRV. L. REV. 349, 352–53, 378–91 (2022) (discussing the Waters of the United States controversy); Robert W. Adler, *A Unified Theory of Clean Water Act Jurisdiction*, 73 CASE W. RSRV. L. REV. 235, 238 (2022) ("This proliferation of CWA scope terms has resulted in a decades-long debate about the range of water bodies subject to the permitting and other regulatory provisions of the Act.").

34. Ge Sun, Steven G. McNulty, Jennifer A. Moore Myers & Erika C. Cohen, *Impacts of Multiple Stresses on Water Demand and Supply Across the Southeastern United States*, 44 J. AM. WATER RES. ASS'N 1441, 1452 (2008).

35. Texas v. New Mexico, 141 S. Ct. 509, 511–12 (2020). Of course, the grandmother of all interstate water disputes remains the western water wars involving the Colorado River system. *See, e.g.*, Bobby Magill, *Historic Drought Forces Feds to Withhold Water from States*,

eastern states, such as that between Georgia, Florida, and Alabama over the Apalachicola, Chattahoochee, and Flint rivers;[36] Kansas and Nebraska over the Republican River;[37] and Mississippi and Tennessee over groundwater,[38] all of which have reached the Supreme Court in recent years. The accelerating demands of industry and agriculture have also exacerbated scarcity. For example, the energy sector's large-scale withdrawals for use in power generation (to cool operations) and extraction of fuels (especially fracking) have depleted water resources.[39] These growing demands are converging with the biggest threat of all—worsening stress from the drought and aridification associated with climate change, especially in the American West.[40]

The disharmonic convergence of these various drivers of water scarcity reveals the central failure of U.S. environmental law in the context of protecting waterways, which is the artificial bifurcation of water quality and water quantity regulation into two separate bodies of law—federal water pollution law and state allocation law, respectively. The CWA has clearly moved the needle on improving water quality, but it is just as clear that it will be a futile gesture for many threatened waterways if we cannot also figure out how to ensure that they continue to flow. With local waterways on the line and federal solutions unforthcoming, environmental advocates are shifting their attention to emerging alternatives to fill this gap left open by the CWA.

II. THE PUBLIC TRUST DOCTRINE

The first alternative legal theory embraced by waterway advocates is the public trust doctrine. Public trust principles stem from an ancient doctrine of the Roman common law, the *jus publicum* principle,[41]

BLOOMBERG L. (May 3, 2022, 4:17 PM), https://news.bloomberglaw.com/environment-and-energy/worsening-drought-forces-interior-to-withhold-water-from-states?context=article-related [https://perma.cc/L2AL-2UPA].

36. Florida v. Georgia, 141 S. Ct. 1175, 1178–79 (2021).

37. Kansas v. Nebraska, 574 U.S. 445, 448 (2015).

38. Mississippi v. Tennessee, 142 S. Ct. 31, 36–37 (2021).

39. Suzanne Goldenberg, *Fracking Is Depleting Water Supplies in America's Driest Areas, Report Shows*, THE GUARDIAN (Feb. 5, 2014, 11:01 AM), https://www.theguardian.com/environment/2014/feb/05/fracking-water-america-drought-oil-gas [https://perma.cc/E2GQ-WV7M].

40. Lauren Sommer, *The Drought in the Western U.S. Is Getting Bad. Climate Change Is Making It Worse.*, NAT'L PUB. RADIO (June 9, 2021, 5:00 AM), https://www.npr.org/2021/06/09/1003424717/the-drought-in-the-western-u-s-is-getting-bad-climate-change-is-making-it-worse [https://perma.cc/E29C-JMFY].

41. *See* Ryan, *A Short History*, *supra* note 26, at 142–43; Erin Ryan, *From* Mono Lake *to the Atmospheric Trust: Navigating the Public and Private*

summarized in the Institutes of Justinian and framed as follows: "By the law of nature these things are common to mankind—the air, running water, the sea, and consequently the shores of the sea."[42] The early United States received this doctrine through English common law and applied it broadly to all navigable waters, an extension from the tidelands that were the focus of early English law.[43] In 1892, in a classic statement of the early American doctrine, the Supreme Court clarified that under common law "the State holds the title to the lands under the navigable waters . . . in trust for the people of the State that they may enjoy the navigation of the waters, carry on commerce over them, and have liberty of fishing therein freed from the obstruction or interference of private parties."[44]

Over the intervening century, the public trust has evolved from a doctrine primarily concerned with the exercise of sovereign authority over submerged lands to a doctrine that is also concerned with the sovereign protection of these submerged lands—increasingly with the protection of the public environmental values associated with them.[45] In circumscribing sovereign authority within these trust obligations, the doctrine also acts as a potentially powerful limit on sovereign power, enforceable by the beneficiaries of the trust—the citizens—in court.[46] *Illinois Central Railroad Co. v. Illinois*,[47] quoted above, provides a clear example. There, the Supreme Court affirmed that the state legislature could not have legitimately transferred ownership of the bed of the Chicago Harbor—a navigable waterway protected by the public trust doctrine—to a private railroad company because the government's ownership interest in the waterway was limited by its trust obligation to the public.[48] The state did hold title to the lakebed, but only "*in*

Interests in Public Trust Resource Commons, 10 GEO. WASH. J. ENERGY & ENV'T L. 39, 42 (2019) [hereinafter Ryan, *Atmospheric Trust*]; Erin Ryan, *The Public Trust Doctrine, Private Water Allocation, and Mono Lake: The Historic Saga of* National Audubon Society v. Superior Court, 45 ENV'T L. 561, 567 (2015) [hereinafter Ryan, *The Historic Saga*]; *see also* ERIN RYAN, THE PUBLIC TRUST DOCTRINE, PRIVATE RIGHTS IN WATER, AND THE MONO LAKE STORY (Cambridge University Press) (forthcoming 2023).

42. J. INST. 2.1.1 (translated in THE INSTITUTES OF JUSTINIAN 167 (Thomas Collett Sandars trans., 4th ed. 1869)).

43. *See* Ryan, *A Short History, supra* note 26, at 140–42, 145.

44. Ill. Cent. R.R. Co. v. Illinois, 146 U.S. 387, 452 (1892).

45. Ryan et al., *Environmental Rights*, *supra* note 7, at 2456–57. Much of my own scholarship has been devoted to tracing this evolution. *See id.*; Ryan, *A Short History*, *supra* note 26; sources cited *supra* note 41.

46. Ryan, *A Short History*, *supra* note 26, at 138, 160, 176–79, 205.

47. 146 U.S. 387 (1892).

48. *Id.* at 452–53.

trust" for the public.[49] The premise of state sovereign ownership and responsibility for managing navigable waterways for the public benefit is the central bedrock of the public trust doctrine across the United States.[50]

In the years that followed, however, the doctrine has continued to evolve across the fifty states, showcasing remarkable differentiation along a number of legal axes: the different forms of law through which public trust principles operate, the different resources protected by the doctrine in different states, the different values protected under the doctrine, and even different legal theories about the nature of the doctrine itself.[51]

First, different forms of law have come to operationalize public trust principles in different states. All states begin with the common law doctrine—the doctrine that operated to vindicate public trust principles in the *Illinois Central* case.[52] In addition, many states have adopted versions of public trust principles in their state constitutions.[53] Some look a lot like the common law doctrine applied by the Supreme Court in *Illinois Central*, while other states have changed or expanded these principles in different ways.[54]

Consider, for example, Pennsylvania's environmental rights amendment to its constitution:

> The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment. Pennsylvania's public natural resources are the

49. *Id.* at 452 (emphasis added).

50. *See generally* Ryan et al., *Environmental Rights*, *supra* note 7. *See also* Robin Kundis Craig, *A Comparative Guide to the Eastern Public Trust Doctrines: Classifications of States, Property Rights, and State Summaries*, 16 PENN STATE ENV'T L. REV. 1, 3–4 (2007) (comparing eastern states' public trust doctrines); Robin Kundis Craig, *A Comparative Guide to the Western States' Public Trust Doctrines: Public Values, Private Rights, and the Evolution Toward an Ecological Public Trust*, 37 ECOLOGY L.Q. 53, 53 (2010) (comparing western states' public trust doctrines); Michael C. Blumm & Rachel D. Guthrie, *Internationalizing the Public Trust Doctrine: Natural Law and Constitutional and Statutory Approaches to Fulfilling the Saxion Vision*, 45 U.C. DAVIS L. REV. 741, 745, 760 (2012) (reviewing the adoption of public trust principles internationally).

51. *See generally* Ryan et al., *Environmental Rights*, *supra* note 7.

52. *See, e.g.*, Joseph D. Kearney & Thomas W. Merrill, *The Origins of the American Public Trust Doctrine: What Really Happened in* Illinois Central, 71 U. CHI. L. REV. 799, 802–03 (2004); *see also* Ryan, *A Short History*, *supra* note 26, at 160–66.

53. Ryan, *A Short History*, *supra* note 26, at 167–70.

54. *Id.* (contrasting the constitutionalized doctrine in Florida, which is similar to the traditional doctrine, and Hawaii, which is more expansive).

> common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.[55]

Pennsylvania's constitution begins with a familiar public trust statement, but it goes on to expand the concept from navigable waterways to all public natural resources in the state. Other states incorporate public trust principles into statutory law, such as the Minnesota Environmental Rights Act[56] and California's Water Code[57] and Fish and Game Code,[58] clarifying application of the doctrine in different substantive contexts. In addition to judicial and legislative invocations of the doctrine, some states have employed public trust principles through the executive branch. In Michigan, for example, the governor used an executive order to clarify that the doctrine protects water quality in the Great Lakes.[59]

The doctrine has also developed differently among the states with regard to the resources identified for protection. While all states begin with the bedrock of state ownership of submerged lands, some have extended the doctrine to protect other resources that are also susceptible to private appropriation or monopoly.[60] Some have extended their application from only surface waters to also include groundwater resources, as has long been the case in Hawaii and now in California, where the doctrine was recently extended to groundwater tributaries of navigable waters.[61] In California, at least one case suggested that the public trust doctrine applies to biodiversity.[62] As discussed above, the Pennsylvania constitution protects not only waterways but all "public natural resources" under the trust[63] and Virginia's constitution adds cultural resources.[64] In her previously noted executive order, the governor of Michigan clarified that the doctrine protected not only

55. PA. CONST. art. I, § 27.

56. Alexandra B. Klass, *The Public Trust Doctrine in the Shadow of State Environmental Rights Laws: A Case Study*, 45 ENV'T L. 431, 431 (2015) (noting that Minnesota environmental statutes have channeled litigation into statutory claims instead of common law public trust doctrine claims).

57. 1943 Cal. Stat. 1606, 1614.

58. Assemb. B. 3158, 1990 Assemb., Reg. Sess. § 711.7 (Cal. 1990).

59. *See* Mich. Exec. Order No. 2019-02 (Feb. 4, 2019).

60. Ryan et al., *Environmental Rights*, *supra* note 7, at 2461.

61. *See* Ryan, *A Short History*, *supra* note 26, at 167; Ryan et al., *Environmental Rights*, *supra* note 7, at 2527 (discussing California).

62. *See* Ctr. for Biological Diversity, Inc. v. FPL Grp., 83 Cal. Rptr. 3d 588, 599 (App. Ct. 2008).

63. PA. CONST. art. I, § 27; *see also* Robinson Twp. v. Commonwealth, 83 A.3d 901, 913, 919–20 (Pa. 2013).

64. VA. CONST. art. XI, §§ 1–2.

water quantity but also water *quality* in the Great Lakes—building on the traditional application of the doctrine, which protected navigability values without necessarily addressing pollution.[65]

Representing the most dramatic attempt to expand the resources protected under the doctrine, youth plaintiffs participating in *Juliana v. United States*[66] and other atmospheric trust litigation have alleged violations of the doctrine for failure to regulate the appropriation of the Justinian air commons as a carbon repository for private polluters.[67] Atmospheric trust litigants have also sought judicial recognition of federal obligations under the public trust, in addition to more conventionally accepted state obligations.[68] These attempts to connect the public trust doctrine to both the air commons and federal law have encountered obstacles in many state and federal courts, but they have had comparative success in the political sphere, mobilizing tens of thousands of allies[69] and achieving regulatory changes outside of court.[70] For example, the governor of Massachusetts created an integrative

65. Ryan et al., *Environmental Rights*, *supra* note 7, at 2479–80; *see also* Mich. Exec. Order, *supra* note 59.

66. 947 F.3d 1159, 1165 (9th Cir. 2020).

67. *See id.* at 1164–65 (9th Cir. dismissed 2020) (Motion for Leave to File a Second Amended Complaint pending), *rev'g* 217 F. Supp. 3d 1224, 1233 (D. Or. 2016); *see also* Erin Ryan, Mary Wood, Jim Huffman, Irma Russell & Richard Frank, Juliana v. United States*: Debating the Fundamentals of the Fundamental Right to a Sustainable Climate*, 46 FLA. ST. U. L. REV. ONLINE 1, 6 (2018) (analyzing both the atmospheric trust claim and the accompanying fundamental rights claim for climate stability); Ryan, *Atmospheric Trust*, *supra* note 41, at 60–64 (discussing the atmospheric trust litigation and analyzing the substantive and procedural history of *Juliana*, 947 F.3d 1159).

68. *See* Ryan, *A Short History*, *supra* note 26, at 138.

69. *Sign the Petition: Tell Attorney General Garland to End Opposition to Youth Climate Justice*, ACTION NETWORK, https://actionnetwork.org/petitions/sign-the-petition-tell-attorney-general-garland-to-end-opposition-to-youth-climate-justice [https://perma.cc/YVF4-APM3] (last visited Feb. 28, 2023).

70. *See, e.g.*, 1323 Mass. Reg. 3 (Oct. 7, 2016) (promulgated in response to legal filings by atmospheric trust advocates); 2019 Colo. Sess. Laws 502 (directing the Colorado Oil and Gas Conservation Commission to develop rules "that protect[] public health, safety, and welfare, including protection of the environment and wildlife resources"); Memorandum from Our Children's Trust on Strongest Climate Policy Enacted in Florida in Over a Decade (Aug. 9, 2022) (on file with author) (explaining Chapter 5O-5 of the Florida Administrative Code, which "sets . . . renewable energy goals for Florida's electric utilities").

climate change strategy by executive order in response to advocacy by his state's participants in the atmospheric trust project.[71]

As the public trust doctrine continues to develop across the country, states also differ on which values are protected under the doctrine. All state doctrines begin with the traditional protected values of transportation, commerce, boating, fishing, and swimming, but many have expanded these values to include other forms of recreation (such as recreational access for kayaking or walking around protected shorelines), aesthetics (i.e., protecting natural beauty), culture, history, and, increasingly, the environment.[72] In addition to protecting cultural values, Virginia's constitution specifically protects environmental values, stating that "it shall be the Commonwealth's policy to protect its atmosphere, lands, and waters from pollution, impairment, or destruction, for the benefit, enjoyment, and general welfare of the people of the Commonwealth."[73] California has judicially affirmed that the doctrine extends to protecting ecological habitat and other scientific values of protected waterways.[74]

In addition to jurisdictional differences regarding which resources and values are protected under the public trust doctrine, some states have even developed competing legal theories about the nature of the doctrine and its relationship to other legal constraints.[75] One of the most important developments involves the relationship of the doctrine to Fifth Amendment takings litigation. A spate of litigation has been testing the extent to which the doctrine should be treated as a background principle of state law that can serve as a defense to environmental regulation of waterways when those regulations are

71. 1323 Mass. Reg. 3; *see* Michael C. Blumm & Mary Christina Wood, *"No Ordinary Lawsuit": Climate Change, Due Process, and the Public Trust Doctrine*, 67 AM. U. L. REV. 1, 73–74 (2017) (discussing Kain v. Dep't of Env't Prot., 49 N.E.3d 1124, 1128 (Mass. 2016), the litigation leading to this executive order).

72. Ryan et al., *Environmental Rights*, *supra* note 7, at 2470–72.

73. VA. CONST. art XI, § 1.

74. Nat'l Audubon Soc'y v. Superior Court (*Mono Lake*), 658 P.2d 709, 719 (Cal. 1983) (quoting Marks v. Whitney, 491 P.2d 374, 380 (Cal. 1971)) ("There is a growing public recognition that one of the most important public uses of the tidelands . . . is the preservation of those lands in their natural state, so that they may serve as ecological units for scientific study, as open space, and as environments which provide food and habitat for birds and marine life, and which favorably affect the scenery and climate of the area."). In the famous *Mono Lake* case of 1983, the California Supreme Court concluded that the trust required protection of ecosystem values at Mono Lake, even when the state balanced legitimate needs to export watershed resources to Los Angeles for municipal use. *Id.* at 732. See Ryan, *A Short History*, *supra* note 26, at 603–13, for further discussion on the *Mono Lake* case.

75. Ryan et al., *Environmental Rights*, *supra* note 7, at 2476–83.

challenged as takings of private property rights.[76] Most states and circuits that have entertained the question have concluded that the public trust doctrine can be used as a defense to takings challenges against laws that require public access or restrict wetland or tideland construction that could impact trust resources, but a few states and circuits have expressed shaded or outright skepticism.[77]

Beyond the background principles question, there is a lack of consensus among the states about the underlying legal nature of the doctrine itself. Is it an ordinary doctrine of common law that would be susceptible to legislative abrogation, or is it something else entirely? Judicial common law is normally subject to legislative override, resolving legal ambiguity until and unless the legislature clarifies otherwise. Idaho pointedly legislated to constrain the trust in this regard, statutorily limiting it to the state sovereign ownership doctrine alone, with no opportunity to expand it as other states have done.[78]

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76. *Id.* at 2480–83.

77. *See* Ryan, *A Short History*, *supra* note 26, at 172–73.

78. *Id.* at 197–99. After the Idaho Supreme Court issued a series of public trust decisions converging on the California Supreme Court's interpretation in *Mono Lake*, the state legislature enacted a statute that expressly foreclosed this interpretive path. The legislation declared that the public trust doctrine did limit the state's ability to alienate title to the beds of navigable waters, but that it had little impact beyond that, preventing the doctrine from impacting the allocation of prior appropriative water rights or state decisions about the commercial, agricultural, or recreational uses of public trust waterways. *Id.* at 197.

Idaho Supreme Court decisions converging on *Audubon Society* approach: Selkirk-Priest Basin Ass'n v. State *ex rel.* Andrus, 899 P.2d 949, 953–54 (Idaho 1995) (suggesting that the public trust doctrine might be used to constrain harm from logging activities to an impacted water body); Idaho Conservation League v. State, 911 P.2d 748, 749–50 (Idaho 1995) (declining intervention by environmental groups to raise public trust issues where state ownership was not at issue, but suggesting in dicta that the public trust doctrine could take precedence "even over vested water rights" (citing Kootenai Env't Alliance v. Panhandle Yacht, 671 P.2d 1085, 1094 (Idaho 1983))); *see also* James M. Kearney, *Closing the Floodgates: Idaho's Statutory Limitation on the Public Trust Doctrine*, 34 IDAHO L. REV. 91, 93–94 (1997) (discussing the reaction of the legislature to these cases).

Legislative Response in HB 794: IDAHO CODE §§ 58–1201 to 1203 (1996) (Chapter 12. Public Trust Doctrine); *id.* at § 58–1201(4) and (6) (defines public trust doctrine as guiding alienation of the title of the beds of navigable waters and clarifies that the purpose of the act is to define limits on the public trust doctrine); *id.* at § 58–1203(1) (limits the public trust doctrine to "solely a limitation on the power of the state to alienate or encumber the title to the beds of navigable waters").

Id. at § 58–1203(3) (does not limit the state to authorize public and private use or alienation of title to the beds of navigable waters if the

However, most states have followed California's approach, which understands the doctrine as a quasi-constitutional constraint on the police power that obligates protection of unique public common resources that would otherwise be susceptible to private appropriation or monopoly.[79] By this view, it is a built-in doctrine that legislatures cannot just casually undo by statute, because it is conceived as a limit on legislative authority itself.

The California Supreme Court made this point most dramatically in 1983 in *National Audubon Society v. Superior Court*,[80] which required it to resolve a conflict over water allocation in which Los Angeles was exporting so much water from Mono Lake, the eastern watershed of Yosemite National Park, that the local ecosystem was on the verge of collapse.[81] The court ultimately concluded that the environmental value of Mono Lake did require protection under the trust and that this obligation was not preempted when the state water board acted pursuant to contrary legislative water laws.[82] This was a milestone for the development of the public trust doctrine as a potential vindicator of the environmental values associated with trust resources. However, the same decision also concluded that the state was required to balance the environmental values associated with Mono Lake against the legitimate needs for water in Los Angeles.[83]

The *Mono Lake* decision highlights the core challenge for the use of the public trust doctrine as a tool of environmental protection: its inherent anthropocentrism. The California Supreme Court clearly understood its utilitarian obligation as one of balancing the public's interest in the ecosystem of Mono Lake against the public's interest in having access to water for municipal use in Los Angeles, hundreds of miles away. The difficulty is in balancing the competing anthropocentric values at stake—the values of interest to the human stakeholders. Indeed, the public trust doctrine unapologetically protects the human interests in natural resources, but if the people would prefer to pave paradise and put up a parking lot,[84] the doctrine does not have much to say about that—which brings us to the alternative approach presented by the rights of nature movement.

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state board of land commissioners determines that it is in accordance with Idaho statutes and constitution and for the purposes of navigation, commerce, recreation, agriculture, mining, forestry, or other uses).

79. *See* Ryan, *A Short History*, *supra* note 26, at 195–97.

80. 658 P.2d 709 (Cal. 1983) (*Mono Lake*).

81. *Id.* at 713–16; *see also* Ryan, *A Short History*, *supra* note 26, at 193.

82. *Mono Lake*, 658 P.2d at 732.

83. *Id.* at 729.

84. Ryan et al., *Environmental Rights*, *supra* note 7, at 2454 (quoting JONI MITCHELL, *Big Yellow Taxi*, *on* LADIES OF THE CANYON (Siquomb Publishing Corp. 1970)).

III. THE RIGHTS OF NATURE MOVEMENT

The rights of nature movement has also been gathering steam as an alternative to the CWA for protecting waterways in the United States,[85] after having gathered comparative force internationally as a general tool for protecting nature and natural systems.[86] The rights of nature movement is not exclusively concerned with waterways, but a survey of its deployment both domestically and internationally shows that the overwhelming majority of the time rights of nature principles are invoked, they are invoked to protect waterways and related natural resources.[87]

However, rights of nature principles begin from a very different environmental ethic than that underlying both the CWA and the public trust doctrine. The CWA and public trust doctrine proceed from a utilitarian environmental ethic, protecting environmental values to maximize social welfare, or provide the greatest good for the greatest number of people. Squarely rejecting the anthropocentrism of protecting only human interests in the environment, the biocentric or ecocentric rights of nature movement protects interests in nature and natural systems directly.[88] Instead of assigning the right to enjoy natural systems to human members of the public, rights of nature proponents ask the law to protect the rights of ecosystems and their components to exist, sometimes assigning them legal personhood.[89]

For example, Ecuador established the most ambitious rights of nature doctrine in the world in a set of 2008 amendments to its national constitution.[90] Article 71 sets forth rights of nature to respect, existence, and support for its integral processes: "Nature . . . has the right to integral respect for its existence and for the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes."[91] It then goes on to describe what those rights of nature look like, including the right to be restored, to flourish, to evolve, and so forth, and who is empowered or obligated to act on these rights: "All persons, communities, peoples and nations can call upon public

85. Ryan et al., *Environmental Rights*, *supra* note 7, at 2501, 2521–38.

86. *Id.* at 2514–21.

87. *Id.* at 2540.

88. *Id.* at 2500–01.

89. *Id.* at 2506–08.

90. CONSTITUCION DE LA REPUBLICA DEL ECUADOR Oct. 20, 2008, ch. 7, art. 71 (acknowledging the comparative strength of Ecuador's rights of nature doctrine), *translated in Political Database of the Americas*, GEORGETOWN UNIV., https://pdba.georgetown.edu/Constitutions/Ecuador/ecuador.html [https://perma.cc/54YQ-GTSD] (Jan. 31, 2011).

91. *Id.*

authorities to enforce the rights of nature."[92] Further, "[t]he State shall apply preventive and restrictive measures on activities that might lead to the extinction of species, the destruction of ecosystems and the permanent alteration of natural cycles."[93]

Ecuador's constitutional amendment helped inspire the adoption of similar principles around the world. In New Zealand, Parliament recognized legal personhood for the Whanganui River in 2017, designating it as "an indivisible and living whole, comprising the Whanganui River from the mountains to the sea, incorporating all Its physical and metaphysical elements."[94] In the same year, the Australian state of Victoria recognized legal rights in the Yarra River.[95] In 2016, the Colombia Constitutional Court recognized the Atrato River as "an entity subject to rights of protection, conservation, maintenance and restoration,"[96] and in 2018, it recognized similar rights in the Amazon River.[97] In India in 2017, the Ganges River was recognized by the High Court of Uttarakhand as a legal person, with its own set of independent legal rights.[98] About a week later, the same court recognized legal personhood in the tributary glacier system above it, specifying that the rights granted to these waterways "shall be equivalent to the rights of human beings and the injury/harm caused to these bodies shall be

92. *Id.*

93. *Id.* at ch. 7, art. 73.

94. Te Awa Tupua Act 2017, s 12 (N.Z.); *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2517–18. Separately, New Zealand also recognized legal personhood in a specific mountain, Mt. Taranaki, and the Te Urewera National Park. *Id.* at 2518.

95. *Yarra River Protection Act 2017*, s 5(b) (Austl.); *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2518–19.

96. Corte Constitucional [C.C.] [Constitutional Court], noviembre 10, 2016, Sentencia T-622/16 (Colom.), *translated in* DIGNITY RIGHTS PROJECT, DEL. L. SCH. (2019), https://delawarelaw.widener.edu/files/resources/riveratratodecisionenglishdrpdellaw.pdf [https://perma.cc/9SRP-8ZM7].

97. Corte Suprema de Justicia [C.S.J.] [Supreme Court], Sala. Civ. abril 5, 2018, M.P: Luis Armando Tolosa Villabona, STC4360-2018, Radicación n. 11001-22-03-000-2018-00319-01 (Colom.), https://www.dejusticia.org/wp-content/uploads/2018/01/Fallo-Corte-Suprema-de-Justicia-Litigio-Cambio-Clim%C3%A1tico.pdf?x54537 [https://perma.cc/4APV-DUJ5]; *Colombian Supreme Court Rules to Protect Future Generations and Amazon Rainforest in Climate Change Case,* ESCR-NET, https://www.escr-net.org/caselaw/2019/stc-4360-2018 [https://perma.cc/7E8T-H9DJ] (last visited Feb. 16, 2023); *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2516–17.

98. Mohd. Salim v. State of Uttarakhand, Writ Petition (PIL) No. 126 of 2014, decided on March 20, 2017 (Uttarakhand High Court), at *11 (India), https://www.nonhumanrights.org/content/uploads/WPPIL-126-14.pdf [https://perma.cc/EA23-EMBS]; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2519–20.

treated as harm/injury caused to the human beings."[99] While the Supreme Court of India ultimately stayed these lower court rulings, that has not stemmed the ongoing tide of rights of nature advocacy and litigation—especially in the north, where the Punjab and Haryana High Court assigned legal personhood to all animals in 2019.[100] In 2020, the same court declared Chandigarh's Sukhna Lake a living entity.[101] In Bangladesh, all rivers in the country have been granted legal personhood.[102]

The historical origins of the rights of nature movement are rooted in indigenous cultures worldwide, where these principles have circulated culturally and legally for generations.[103] In the Western legal tradition, the historical origins begin with the Supreme Court's dismissal of the idea in 1972 in *Sierra Club v. Morton*,[104] a case rejecting the notion that harm to the natural environment itself was sufficient to confer standing in a suit to halt development plans for a Disney ski resort in the Sequoia National Forest.[105] While the claim was unsuccessful, it launched a wave of scholarship contending that the Court had wrongly decided the rights of nature issue, including Christopher Stone's famous treatment in *Should Trees Have Standing?*, which argued for direct recognition of legal rights in natural objects and in nature as a whole.[106]

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99. Lalit Miglani v. State of Uttarakhand, Writ Petition (PIL) No. 140 of 2015, decided on March 30, 2017, at *65 (Uttarakhand High Court) (India), http://www.indiaenvironmentportal.org.in/files/living%20entity%20Gangotri%20Himalaya%20Uttarakhand%20High%20Court%20Order.pdf [https://perma.cc/2YRM-4XUA]; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2520.

100. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2520 (describing the judicial proceedings from there). Appeals to some (but not all) Indian rights of nature decisions remain pending as this Essay goes to press.

101. Court on Its Own Motion v. Chandigarh Administration, CWP No. 18253 of 2009 (P&H H.C.) (2020) (Unreported), https://www.livelaw.in/pdf_upload/pdf_upload-370827.pdf [https://perma.cc/W4NU-VJRN]. Thus far, the designation of Sukhna Lake as a living entity appears not to have been challenged.

102. *See* Rina Chandran, *Fears of Evictions as Bangladesh Gives Rivers Legal Rights*, THOMSON REUTERS FOUND. NEWS. (July 4, 2019, 11:58 GMT), https://news.trust.org/item/20190704113918-rzada [https://perma.cc/GZD4-U9AF]; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2520–21.

103. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2502–03, 2502 n.289 (quoting DAVID R. BOYD, THE RIGHTS OF NATURE: A LEGAL REVOLUTION THAT COULD SAVE THE WORLD 9 (2017)).

104. 405 U.S. 727 (1972).

105. *See id.* at 735–36, 739–42, 749–50 (Douglas, J., dissenting).

106. Christopher D. Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450, 455–56 (1972); *see*

The resulting rights of nature discourse has produced results in the legal systems of countries around the world, including the aforementioned examples in Oceania, Asia, and South America, as well as in North American First Nations and Tribes and several municipalities in the United States.[107] The embrace of rights of nature reasoning reflects growing dissatisfaction with the environmental ethical underpinnings of conventional Western legal systems and the results of environmental management within them.[108] Nevertheless, the core challenge for the use of rights of nature principles in environmental advocacy remains a pragmatic one—who speaks for nature, when rights holders cannot themselves speak? And what if the people speaking on their behalf do not all agree?[109]

Different jurisdictions have taken a variety of approaches to resolve these and other dilemmas, some dealing with the pragmatic challenges more directly than others. As a result of these simultaneous but diverging developments in the emerging international discourse, the rights of nature movement has begun to differentiate jurisdictionally along legal axes that bear resemblance to some of the variations on the theme of the public trust doctrine described in Part II.[110] In recent scholarship, my coauthors and I provide a snapshot of what the rights of nature movement looks like internationally and domestically, describing different approaches to such open questions as what in nature has received legal rights, who speaks for rights holders, by what legal mechanisms are those rights vindicated, and which rights are receiving protection.[111]

In cataloging these rights of nature initiatives around the world, an important theme that bears highlighting is how often the features in nature designated for legal personhood or protection are waterways.[112] As indicated by the list of examples reported above, these include the Atrato and Amazon River systems in Colombia; the Whanganui and Yarra Rivers in New Zealand and Australia, respectively; Sukhna Lake in Chandigarh, India; and every single one of the rivers in the nation of Bangladesh.[113]

Cormac Cullinan, *Do Humans Have Standing to Deny Trees Rights?*, 11 BARRY L. REV. 11, 11–12, 19–21 (2008) (referring to Stone's "seminal" article that "motivated the famous dissenting judgment by Justice Douglas in the case of *Sierra Club v. Morton*").

107. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2514–38.

108. *See id.* at 2548–50.

109. *See id.* at 2509–10.

110. *See supra* note 51 and accompanying text.

111. Ryan et al., *Environmental Rights*, *supra* note 7, at 2514–39.

112. *Id.* at 2559.

113. *See supra* notes 94–102 and accompanying text; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2516–21.

This flurry of international activity has spurred growing interest in rights of nature initiatives to protect vulnerable waterways in the United States. A raft of municipal rights of nature ordinances have recently been enacted, some successfully and some less so, including examples in California (the Santa Monica Bill of Rights for Sustainability);[114] Pennsylvania (a sewage ordinance in Tamaqua Borough and an anti-fracking ordinance in Pittsburgh);[115] Ohio (the Lake Erie Bill of Rights, though it was subsequently preempted by the state legislature and judicially invalidated);[116] and a number in the state of Florida.[117] In 2020 alone, Florida municipalities placed at least five rights of nature ordinances on the ballot, generally designed to protect waterways under threat from water withdrawals and other quantity-threatening forces not cognizable under the CWA.[118] The rise of rights of nature initiatives in Florida was so alarming to potentially impacted large-scale water users that the state legislature acted unusually promptly to preempt any local attempt to assign legal rights to anything in nature, immediately rendering all pending ordinances legally unenforceable.[119] Nevertheless, even after this act of preemption, an Orange County ballot initiative establishing rights in the Wekiva and Econlockhatchee Rivers was enacted, launching a conflict that will now be resolved through parallel advocacy both in court and the political sphere.[120] Similarly, when the anti-fracking rights of nature

114. SANTA MONICA, CAL., MUN. CODE § 12.02.030(b) (2019); Ryan et al., *Environmental Rights*, *supra* note 7, at 2527.

115. Tamaqua Borough, Pa., Tamaqua Borough Sewage Sludge Ordinance, Ordinance 612 (Sept. 19, 2006); PITTSBURGH, PA., CODE § 618.03 (2022); Ryan et al., *Environmental Rights*, *supra* note 7, at 2522–23.

116. TOLEDO, OHIO, MUN. CODE, ch. XVII, § 253 (2019); Ryan et al., *Environmental Rights*, *supra* note 7, at 2526–27 (explaining that the Lake Erie Bill of Rights, though enacted by Toledo voters, was later preempted by the Ohio Legislature and overturned by a federal district court).

117. Ryan et al., *Environmental Rights*, *supra* note 7, at 2527–29.

118. *See id.* at 2531 n.468, 2531–34.

119. FLA. STAT. § 403.412(9)(a) (2020) (proposed as Senate Bill 712); Ryan et al., *Environmental Rights*, *supra* note 7, at 2532–36 (discussing the state and local impacts following the enactment of Florida's rights of nature preemption bill).

120. Ryan et al., *Environmental Rights*, *supra* note 7, at 2534–36 (discussing the enactment of the Wekiva River and Econlockhatchee River Bill of Rights (WEBOR)). The first lawsuit using WEBOR was filed in Florida in 2021. *See* Complaint at 1–2, Wilde Cypress Branch v. Beachline South Residential, L.L.C., No. 2021-CA-004420-O (Fla. 9th Cir. Ct. Apr. 26, 2021); *see also* Katie Surma, *Florida Judge Asked to Recognize the Legal Rights of Five Waterways Outside Orlando*, INSIDE CLIMATE NEWS (April 27, 2022), https://insideclimatenews.org/news/27042022/florida-rights-of-nature-suit/ [https://perma.cc/KE9V-FGEK] (stating that the

ordinance in Grant Township, Pennsylvania was judicially invalidated, the town responded with a home rule charter that incorporated the same rights of nature provisions, which eventually prompted the state environmental agency to rescind permission for the fracking at issue.[121] Examples like these suggest that even rights of nature initiatives that fail in the judicial sphere may succeed through conventional political processes.

In the United States and North America more broadly, the most successful examples of rights of nature legal initiatives are taking place among Native communities within Indian Tribes and First Nations, which have enacted a set of rights of nature laws less likely to meet resistance within indigenous legal systems.[122] For example, in California, the Yurok Tribe declared legal personhood for the Klamath River.[123] In Minnesota, the White Earth Band of Ojibwe declared legal rights for *manoomin*, a species of wild rice.[124] In Wisconsin, the Ho-Chunk Nation's General Council approved adding a general rights of nature provision to its tribal constitution,[125] and the Menominee Tribe

presiding judge ordered the parties to submit orders on how the court should rule on defendants' motion to dismiss).

121. Ryan et al., *Environmental Rights*, *supra* note 7, at 2525 (describing the political and judicial back-and-forth).

122. *Id.* at 2536–38.

123. *Testimony Regarding Natural Solutions to Cutting Pollution and Building Resilience: Hearing Before the H. Select Comm. on the Climate Crisis*, 116th Cong. 8 (2019) [hereinafter *Testimony Regarding Natural Solutions*], (statement of Frankie Myers, V. Chairman, Yurok Tribe), https://docs.house.gov/meetings/CN/CN00/20191022/110110/HMTG-116-CN00-Wstate-MyersF-20191022.pdf [https://perma.cc/B5RH-X2NM]; *Tribal Council Passes Historic Resolution*, YUROK TODAY, May 2019, at 3 (quoting a member of the Yurok Tribal Council who stated, "We are sending a strong message that we now have an additional legal mechanism to shield the Klamath against those who might harm our most sacred resource. It is and always will be our responsibility to defend this river by any means necessary."); *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2538.

124. Resolution Establishing Rights of Manoomin, Resol. 2018-05, 1855 Treaty Auth. (Dec. 5, 2018); Resol. 001-19-009, White Earth Rsrv. Bus. Comm. (Dec. 31, 2018); Resol. 001-19-010, White Earth Rsrv. Bus. Comm. (Dec. 31, 2018). The resolution states that manoomin has "inherent rights to exist, flourish, regenerate, and evolve, as well as inherent rights to restoration, recovery, and preservation." *Id.*; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2537–38.

125. A Resolution to Amend the Ho-Chunk Nation Constitution and Provide for Rights of Nature, Resol. 09-19-15, Gen. Council (2015); *Press Release: Ho-Chunk Nation General Council Approves Rights of Nature Constitutional Amendment*, CMTY. ENV'T LEGAL DEF. FUND (Sept. 17, 2018), https://celdf.org/2018/09/press-release-ho-chunk-nation-general-council-approves-rights-of-nature-constitutional-amendment [https://perma.cc/PM2P

attempted to stop proposed mining plans by asserting legal rights in the Menominee River.[126] In Quebec, the Innu Council of Ekuanitshit granted legal rights to the Magpie River.[127] While these newly recognized rights may represent a shift in the formal legal landscape, for many tribes, they simply codify cultural principles that they have always held to be true: recognizing the sacredness of nature, and that people and the environment are "inextricable" parts of an overall ethical whole.[128]

The rights of nature and public trust doctrines have thus independently evolved to address gaps in the legal protection afforded by the Clean Water Act and other environmental laws. Interestingly, the foregoing examples reveal that while the two approaches stem from very different principles, they are evolving along similar legal pathways.[129] The public trust doctrine has had much more time to develop in comparison to the emerging rights of nature doctrine, but in these most recent decades, we see them diverging jurisdictionally along related legal axes involving what they protect and how they operate. This parallelism suggests that despite the important differences in their underlying principles, advocates may be relying on them to solve related environmental problems.

Reviewing the development of rights of nature principles in different jurisdictions, the first axis on which initiatives differ is their answer to the question of what elements in nature should receive legal protection.[130] In some contexts, like the Constitution of Ecuador, all of

-4C89] (reporting that 86.9 percent of the General Council had voted to proceed with the amendment); *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2536.

126. Amelia Cole, *Wisconsin Tribe Recognizes Menominee River Rights*, GREAT LAKES ECHO (Mar. 13, 2020), https://greatlakesecho.org/2020/03/13/wisconsin-tribe-recognizes-menominee-river-rights [https://perma.cc/MS8B-9954]; *see also* Ryan et al., *Environmental Rights*, *supra* note 7, at 2536.

127. *See* Jack Graham, *Canadian River Wins Legal Rights in Global Push to Protect Nature*, THOMAS REUTERS FOUND. (Feb. 24, 2021, 6:49 PM), https://news.trust.org/item/20210224174810-i75ms [https://perma.cc/H5WY-6RXQ]; *see also* Morgan Lowrie, *Quebec River Granted Legal Rights as Part of Global 'Personhood' Movement*, CBC (Feb. 28, 2021, 9:10 AM), https://www.cbc.ca/news/canada/montreal/magpie-river-quebec-canada-personhood-1.5931067 [https://perma.cc/4AUB-HCHT]; Ryan et al., *Environmental Rights*, *supra* note 7, at 2538 ("The indigenous council and municipality confer[red] nine rights to the river, including the right to flow, the right to maintain its natural biodiversity, and the right to sue.").

128. Ryan et al., *Environmental Rights*, *supra* note 7, at 2536.

129. *Id.* at 2461–72 (outlining the evolution of the public trust doctrine), 2506–13 (outlining the evolution of the rights of nature doctrine).

130. *Id.* at 2506–07.

nature receives legal protection.[131] In others, specific ecosystems receive protection—for example, river systems have received legal protection in Oceania and Bangladesh, and Indian states have even proposed adding glaciers.[132] In others, specific species have received protection, such as the *manoomin* species of wild rice in Minnesota.[133]

One question that all rights of nature jurisdictions must grapple with is the matter of who speaks legally for rights holders that cannot themselves speak—and here, too, there is jurisdictional differentiation. The Constitution of Ecuador clarifies that virtually everyone has the right to speak on behalf of nature, and perhaps the obligation to do so.[134] Elsewhere, rights of nature laws designate a specific local community with a special relationship to the protected resource to act legally in support of its rights, an approach widely taken in the U.S. municipalities that have enacted rights of nature ordinances.[135] In other nations, special guardians have been appointed to protect the rights of the resource, as New Zealand has done in appointing a Te Pou Tupua Council to protect the Whanganui River.[136]

Jurisdictions also differ in specifying the legal mechanisms that will operate to vindicate the rights of nature recognized by their legal systems. Ecuador elevates the rights of nature to a constitutional principle, and there has been speculation that Sweden might follow.[137] In other nations, like Bolivia, and North American Tribes and First Nations, rights of nature principles have been codified through

131. *Id.* at 2514; CONSTITUCION DE LA REPUBLICA DEL ECUADOR, Oct. 20, 2008, art. 71, *translated in Political Database of the Americas*, GEORGETOWN UNIVERSITY, https://pdba.georgetown.edu/Constitutions/Ecuador/english08.html [https://perma.cc/54YQ-GTSD] (Jan. 31, 2011).

132. Ryan et al., *Environmental Rights*, *supra* note 7, at 2518–21; *see also supra* notes 94–99 and accompanying text.

133. Resolution Establishing Rights of Manoomin § 1(a), 2018 (Res. No. 2018-05) (Chippewa).

134. CONSTITUCION DE LA REPUBLICA DEL ECUADOR, Oct. 20, 2008, art. 71, *translated in Political Database of the Americas*, GEORGETOWN UNIV., https://pdba.georgetown.edu/Constitutions/Ecuador/english08.html [https://perma.cc/54YQ-GTSD] (Jan. 31, 2011).

135. Ryan et al., *Environmental Rights*, *supra* note 7, at 2509–10.

136. *Id.* at 2510; Te Awa Tupua Act 2017, s 12 (N.Z.).

137. Ryan et al., *Environmental Rights*, *supra* note 7, at 2510 (noting that Swedish Member of Parliament Rebecka Le Moine proposed a constitutional amendment to recognize rights of nature in 2019, but it was unsuccessful); *see also Media Release: Rights of Nature Constitutional Amendment Introduced in Sweden's Parliament*, CMTY. ENV'T LEGAL DEF. FUND (Oct. 8, 2019), https://celdf.org/2019/10/media-release-rights-of-nature-constitutional-amendment-introduced-in-swedens-parliament [https://perma.cc/5PKN-HBUY].

legislative action.[138] Within U.S. states, the predominant vehicles for enacting rights of nature principles have been municipal ordinances.[139] In Bangladesh, rights of nature protections have been conferred by courts as a judicial remedy.[140]

Finally, and perhaps most interestingly, there is jurisdictional variation on the question of which rights are actually being protected under different rights of nature initiatives. Internationally, rights of nature initiatives are often framed as conferring legal personhood on the rights holder.[141] For example, New Zealand has conferred legal personhood on rivers, mountains, and national parks,[142] and in the Punjab and Haryana regions of India, animals have been granted the same legal rights that a person would hold.[143] However, other jurisdictions recognize special, nature-specific rights that people do not actually have. For example, the Constitution of Ecuador grants rights to nature to both exist and evolve (as did the Lake Erie Bill of Rights, before it was preempted), even though there is no comparable legally recognized right of a person to evolve.[144] In other jurisdictions, rights of nature initiatives are framed more modestly, in terms that resemble a form of strong but conventional environmental protection, such as the Australian requirement of a strategic plan to protect the Yarra River.[145]

Conclusion

The Clean Water Act continues to perform its critical role of protecting the quality of the nation's waters from the interference of pollution, as well it should. The statute remains one of the great achievements of American environmental law, and it provides a beacon for other nations and entities confronting the challenges of pollution. Hallowed though it may be, however, it has proved insufficient to accomplish the ultimate goal of protecting the nation's waterways. The great statute remains powerless to protect waterways from interference with the quantity of water furnished from upstream sources—and our waterways are increasingly under threat.

Into this gap step the public trust doctrine and rights of nature movement, relative newcomers to the field of environmental law, still

138. Ryan et al., *Environmental Rights*, *supra* note 7, at 2515, 2536–38.

139. *Id.* at 2522–35.

140. *Id.* at 2520–21; *see also supra* note 102 and accompanying text.

141. Ryan et al., *Environmental Rights*, *supra* note 7, at 2512.

142. *Id.* at 2517–18; *see also supra* note 94 and accompanying text (describing rights of nature initiatives in New Zealand).

143. Ryan et al., *Environmental Rights*, *supra* note 7, at 2520.

144. *Id.* at 2513.

145. *Yarra River Protection Act 2017*, s 5(b) (Austl.).

developing and differentiating before us in real time. In both contexts, the predominant focus is on the very waterways beyond the protection of the CWA (and its statutory analogs in other nations).[146] The urgency with which environmentalists have turned to these alternatives reflects both the centrality of waterways to natural ecosystems and the shortcomings of conventional environmental laws, such as the CWA, to protect them.[147]

The public trust doctrine and rights of nature movement proceed from contrasting environmental ethics, but they showcase surprising common ground pragmatically. They both speak to concerns underserved by conventional environmental law, they protect environmental values underappreciated in cost-benefit analyses, and for better or worse, they usually represent an argument of last resort—one to which advocates turn only after more traditional remedies have failed.[148] Moreover, although the ecocentrism of the rights of nature movement seems irreconcilable with the anthropocentrism of the public trust doctrine, we might query how deeply that dichotomy reflects the apparent beliefs of many advocates who appeal to them—and sometimes even to both of them simultaneously.[149]

However we should understand those beliefs, it is notable that the two approaches each seem to resonate with people on an ethical and even emotional level that goes beyond the reach of many other environmental laws, including even the beloved CWA.[150] The ideas at their heart are simple. At its core, the public trust doctrine holds that the river—or the lake, or the harbor, or whatever the trust resource may be—is so precious that it must be preserved for everyone's benefit. The rights of nature movement holds that the river, as a part of nature, is so precious that it must be preserved for its own intrinsic value. The intuitive force of these ideas exerts leverage in the political arena, even when the same ideas fail judicially[151]—as Massachusetts atmospheric trust advocates demonstrated in securing a climate action plan by executive order[152] and as Pennsylvania rights of nature advocates demonstrated in securing an anti-fracking ordinance in Grant

146. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2559–60.

147. *Id.*

148. *Id.* at 2560.

149. *See id.* at 2555–57.

150. *Id.* at 2562–63.

151. *Id.* at 2561.

152. *See supra* notes 70–71 and accompanying text; Ryan, *A Short History*, *supra* note 26, at 60–62, 61 n.366 (discussing the *Juliana* youths' climate case and the creation of an executive climate action plan in Massachusetts); Ryan et al., *Environmental Rights*, *supra* note 7, at 2562 (discussing the political power of the claims in *Juliana*).

Township.[153] These principles seem to galvanize communities to accomplish environmental goals outside of court, which can be every bit as important as what happens in court (and even more so).

The public trust doctrine and rights of nature movement each continue to unfold as we speak, and the rich jurisdictional differentiation described in this Essay and preceding work suggests that neither one is "finished."[154] Indeed, it reminds us that there is really no such thing as the "public trust doctrine" or the "rights of nature movement," but rather multiple doctrines and multiple movements.[155] As I have observed in previous work, the principles outlined in these emerging environmental theories are more "mosaics" than they are monoliths, and we can expect them to evolve further as they continue to develop across the land.[156]

Hopefully, the CWA will also continue to develop, with purposeful statutory innovations to help fill the gaps that these approaches are increasingly called on to remedy. In the end, the nation's ailing waterways need all hands on deck, and all legal alternatives on the table.

153. *See supra* note 121 and accompanying text.

154. *See* Ryan et al., *Environmental Rights*, *supra* note 7, at 2556, 2575–76; *see also* Ryan, *A Short History*, *supra* note 26, at 205–06.

155. Ryan et al., *Environmental Rights*, *supra* note 7, at 2558–59.

156. *Id.*