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## Protecting Our At-Risk Communities from the Ground(Water) Up: CAFOs, the Clean Water Act, and a Framework for Offering Clarity to an Imprecise Maui Test

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# **PROTECTING OUR AT-RISK COMMUNITIES FROM THE GROUND(WATER) UP: CAFOs, THE CLEAN WATER ACT, AND A FRAMEWORK FOR OFFERING CLARITY TO AN IMPRECISE MAUI TEST**

## **ABSTRACT**

*For rural communities across the country, the problems associated with concentrated animal feeding operations (CAFOs) are nothing new. These industrial-sized operations emit a tremendous amount of waste, polluting the surrounding air, land, and water. In many regions, minority, indigent, and uneducated groups disproportionately bear the ill-effects of these inhumane operations. Under the Clean Water Act, CAFOs are explicitly included in the definition of a point source and are thus subject to the National Pollutant Discharge Elimination System (NPDES) permitting requirements, which regulates the discharge of pollutants. However, many operations do not fit within this regulatory scheme as they do not directly discharge to navigable waters. In April 2020, the Supreme Court held in County of Maui v. Hawaii Wildlife Fund that point sources do not actually need to discharge directly into jurisdictional waters to fall within the ambit of the NPDES permitting program; instead, a “functional equivalent” of a direct discharge will suffice. Applying this “functional equivalent” doctrine to encompass select instances of CAFO groundwater contamination would give our rural communities a real avenue to meaningfully combat environmental injustices that had previously been just a reality with which they had to cope.*

*This Comment argues that the Maui doctrine can uniquely work as a doctrinal tool against concentrated animal feeding operations that contaminate surface waters through groundwater, placing those operations under the scope of the NPDES regulatory framework and providing multi-faceted relief to affected communities. It explores the difficulties involved with establishing sufficient scientific linkage on the issue of groundwater contamination by CAFOs and why that task is far from insurmountable. It then spotlights the application of the Maui doctrine to actual, real-world CAFOs and offers factors, goals, and directives that bring CAFOs that pollute into nearby waterbodies through groundwater squarely within the ambit of the Clean Water Act. Finally, this Comment discusses the substantial environmental implications of CAFO regulation and this Comment’s utility for other foreseeable applications of the Maui doctrine.*

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## INTRODUCTION

What imagery do we associate with farmlands? Some may mistakenly believe the breeding grounds that source America's carnivorous appetite situate on rustic mom-and-pop farms where families work hard and children frolic in the haystacks—one great big happy scene from a country music song. That idyllic image of cows grazing under open green pastures with a bright red barn in the background is, of course, now largely an illusion. We may have grown up reading *Charlotte's Web*,<sup>1</sup> but “the reality for the vast majority of the more than 9 billion animals raised for food each year in the U.S. does not bear even a passing resemblance to Wilbur's world.”<sup>2</sup> Instead, concentrated animal feeding operations (CAFOs) are now responsible for over ninety-nine percent of the roughly ten billion animals slaughtered for food each year in the United States.<sup>3</sup> CAFOs are corporate industrial-sized livestock operations and can house hundreds to thousands of animals, depending on the animal.<sup>4</sup> The harm from CAFOs comes in significant part from the overwhelming waste that these farms produce.<sup>5</sup> In addition to harming our water resources,<sup>6</sup> the pollution from these operations significantly contributes to climate change,<sup>7</sup> worsens air quality,<sup>8</sup> and drives down property values.<sup>9</sup> But perhaps most importantly, inhabitants in regions laden with CAFOs face a myriad of serious health complications,<sup>10</sup> including irreversible brain damage, burning eyes, and “blue baby syndrome”

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<sup>1</sup> E.B. WHITE, *CHARLOTTE'S WEB* (1st ed. 1952).

<sup>2</sup> Paloma Sisneros-Lobato, *Industrial Farming Is Not as You've Pictured*, NRDC (Aug. 24, 2020), <https://www.nrdc.org/experts/paloma-sisneros-lobato/industrial-farming-not-youve-pictured>.

<sup>3</sup> Christine Ball-Blakely, *CAFOs: Plaguing North Carolina Communities of Color*, 18 *SUSTAINABLE DEV. L. & POL'Y* 4, 4 (2017).

<sup>4</sup> For a breakdown of CAFO regulatory classifications, see U.S. ENV'T PROT. AGENCY, *REGULATORY DEFINITIONS OF LARGE CAFOs, MEDIUM CAFOs, AND SMALL CAFOs* (n.d.), [https://www.epa.gov/sites/production/files/2015-08/documents/sector\\_table.pdf](https://www.epa.gov/sites/production/files/2015-08/documents/sector_table.pdf).

<sup>5</sup> Kai Olson-Sawyer, *First-Ever Court Victory Holds CAFO Accountable for Water Pollution*, *CIV. EATS* (Feb. 9, 2012), <https://civileats.com/2012/02/09/first-ever-court-victory-holds-cafo-accountable-for-water-pollution/> (“According to the EPA, ‘a single dairy cow produces approximately 120 pounds of wet manure per day,’ which is ‘equivalent to that of 20–40 people.’”).

<sup>6</sup> See *infra* Part I.

<sup>7</sup> While recognizing the profound impacts CAFOs have on climate change, this Comment omits discussion of greenhouse gas emissions. For a discussion, see Linda Breggin & Bruce Myers, *Tackling the Problem of CAFOs and Climate Change: A New Path to Improved Animal Welfare?*, in *WHAT CAN ANIMAL LAW LEARN FROM ENVIRONMENTAL LAW?* 371, 371–75 (Randall S. Abate ed., 2d ed. 2020).

<sup>8</sup> See CARRIE HRIBAR, *UNDERSTANDING CONCENTRATED ANIMAL FEEDING OPERATIONS AND THEIR IMPACT ON COMMUNITIES* 5, 7 (2010), [https://www.cdc.gov/nceh/ehs/docs/understanding\\_cafos\\_nalboh.pdf](https://www.cdc.gov/nceh/ehs/docs/understanding_cafos_nalboh.pdf). Some common pollutants found in air surrounding CAFOs are ammonia, hydrogen sulfide, and methane. *Id.* at 5.

<sup>9</sup> *Id.* at 11.

<sup>10</sup> See *id.* at 6 (listing different CAFO emissions and the corresponding health risks associated with those pollutants).

(also known as infant methemoglobinemia, a condition in which a baby's skin turns blue from insufficient oxygen in the blood).<sup>11</sup>

Furthermore, the “routine feeding of antibiotics” to animals encourages the development of antibiotic-resistant bacteria that can then inflict catastrophic consequences on the general population,<sup>12</sup> including the possibility of contributing to the next global pandemic.<sup>13</sup> These operations, in many cases, are disproportionately situated in regions populated by minority,<sup>14</sup> indigent,<sup>15</sup> and uneducated groups<sup>16</sup> who consequently are the primary bearers of the ill-effects of these inhumane operations.

There are many limitations when it comes to fighting back against CAFOs. Due to powerful financial incentives aimed at keeping these operations humming, at-risk communities face influential special interest groups and lobbyists that help enact mechanisms that strip these communities of meaningful ways to fight exploitation, including “ag-gag”<sup>17</sup> and right-to-farm laws.<sup>18</sup> Furthermore, the U.S. Environmental Protection Agency (EPA) itself has not effectively provided the requisite information for regulating CAFOs and has

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<sup>11</sup> See *Why Are CAFOs Bad?*, SIERRA CLUB, <https://www.sierraclub.org/michigan/why-are-cafos-bad#feces> (last visited Dec. 17, 2021).

<sup>12</sup> See *How CAFOs Contribute to Antibiotic Resistance*, IOWA ALL. FOR RESP. AGRIC., <https://cleaniowanow.org/learn-about-the-problem/how-cafos-cause-antibiotic-resistance/> (last visited Dec. 17, 2021).

<sup>13</sup> Sisneros-Lobato, *supra* note 2 (“Antibiotics are precious medicines and their misuse and overuse can drive the spread of bacterial resistance. . . . Antibiotic resistance remains a significant public health threat and could lead to the next major pandemic.”); see also *Experts Warn Concentrated Animal Feeding Operations (CAFOs) Could Lead to the Next Pandemic*, BEYOND PESTICIDES (May 1, 2020), <https://beyondpesticides.org/dailynewsblog/2020/05/experts-warn-concentrated-animal-feeding-operations-cafos-could-lead-to-the-next-pandemic/> (relaying the warnings from scientists that CAFOs are “setting the table for the next pandemic”).

<sup>14</sup> One of the most well-documented environmental justice stories is in eastern North Carolina, where CAFOs dominate the coastal plains. See Wendee Nicole, *CAFOs and Environmental Justice: The Case of North Carolina*, 121 ENV'T HEALTH PERSPS. A182, A183 (2013), <https://ehp.niehs.nih.gov/doi/full/10.1289/ehp.121-a182>.

<sup>15</sup> See, e.g., Bob Edwards & Anthony E. Ladd, *Race, Class, Political Capacity and the Spatial Distribution of Swine Waste in North Carolina, 1982–1997*, 9 N.C. GEOGRAPHER 51, 53 (2001).

<sup>16</sup> Even in select areas in the Midwest, such as Iowa where high swine density is not associated with “non-whites and poor residents,” we still see the “importance of education in providing a buffer against proximity to swine” and its negative effects. For further discussion, see generally Margaret Carrel, Sean G. Young & Eric Tate, *Pigs in Space: Determining the Environmental Justice Landscape of Swine Concentrated Animal Feeding Operations (CAFOs) in Iowa*, 13 INT'L J. ENV'T RSCH. & PUB. HEALTH 849 (2016).

<sup>17</sup> The term “ag-gag” refers to anti-whistleblower laws, which “make taking pictures, filming, or recording on farms and livestock production facilities illegal.” Sonci Kingery, *The Agricultural Iron Curtain: Ag Gag Legislation and the Threat to Free Speech, Food Safety, and Animal Welfare*, 17 DRAKE J. AGRIC. L. 645, 647 (2012).

<sup>18</sup> Right-to-farm laws vary by state but generally seek to limit common-law nuisance claims against farming operations. See Terence J. Centner, *Governments and Unconstitutional Takings: When Do Right-to-Farm Laws Go Too Far?*, 33 B.C. ENV'T AFFS. L. REV. 87, 88 (2006).

gone so far as to admit that they “historically paid little attention to the state CAFO programs.”<sup>19</sup>

However, the Clean Water Act (CWA) provides an avenue to regulate CAFOs.<sup>20</sup> The CWA is a federal law that established the National Pollutant Discharge Elimination System (NPDES) permitting program,<sup>21</sup> which prohibits the discharge of any pollutant from any point source<sup>22</sup> into navigable waters<sup>23</sup> unless the polluter obtains the requisite permit.<sup>24</sup> Under the CWA, CAFOs are explicitly included in the definition of a point source and thus subject to NPDES permitting.<sup>25</sup> However, animal feeding operations (AFOs) need to fulfill certain size and characteristic requirements before they can be considered CAFOs,<sup>26</sup> and many operations do not fit within this regulatory scheme as they do not directly discharge to navigable waters.<sup>27</sup> But in April 2020, the Supreme Court held in

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<sup>19</sup> U.S. GOV'T ACCOUNTABILITY OFF., GAO-03-285, LIVESTOCK AGRICULTURE: INCREASED EPA OVERSIGHT WILL IMPROVE ENVIRONMENTAL PROGRAM FOR CONCENTRATED ANIMAL FEEDING OPERATIONS 3 (2003). The EPA additionally “lacks basic information about most CAFOs, including their location, how many animals they confine, how much waste they produce, and how they dispose of that waste.” Jon Devine & Valerie Baron, *CAFOs: What We Don't Know Is Hurting Us*, NRDC (Sept. 23, 2019), <https://www.nrdc.org/resources/cafos-what-we-dont-know-hurting-us>.

<sup>20</sup> The federal Resource Conservation and Recovery Act (RCRA) presents another potential avenue for protecting groundwater from CAFO pollution. Solid Waste Disposal Act, 42 U.S.C. §§ 6901–6992k (2016) (known as the Resource Conservation and Recovery Act following the 1976 amendments of the Solid Waste Disposal Act); *see, e.g.*, Cmty. Ass'n for Restoration of the Env't, Inc. v. Cow Palace, LLC, 80 F. Supp. 3d 1180, 1223–24 (E.D. Wash. 2015) (extending RCRA to agriculture by holding that manure can, under some circumstances, qualify as “solid waste” under RCRA). This Comment focuses on the CWA and omits discussions of the RCRA's application to groundwater contamination issues.

<sup>21</sup> 33 U.S.C. § 1342.

<sup>22</sup> The CWA defines the term “point source” as “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.” *Id.* § 1362(14).

<sup>23</sup> “Navigable waters” are defined as “the waters of the United States, including the territorial seas.” *Id.* § 1362(7). For a current definition of “waters of the United States” (WOTUS) and what it constitutes under the most recent 2020 Waters of the United States rule promulgated under the Trump Administration, *see* 33 C.F.R. § 328.3 (2020) (defining the jurisdiction of the term “WOTUS”). However, this definition had been expected to broaden under the Biden Administration. *See, e.g.*, Bobby Magill, *Biden Swings Waters Pendulum with Final Resolution Still Elusive*, BLOOMBERG L. (Jan. 29, 2021, 5:30 AM), <https://news.bloomberglaw.com/environment-and-energy/biden-swings-waters-pendulum-with-final-resolution-still-elusive>; U.S. ENV'T PROT. AGENCY, *Waters of the United States*, <https://www.epa.gov/wotus> (last visited Dec. 28, 2021) (“On December 7, 2021, the EPA and the Department of the Army . . . announced a proposed rule to revise the definition of ‘waters of the United States’ . . . to put back into place the pre-2015 definition,” before writing its own rule.).

<sup>24</sup> 33 U.S.C. § 1342.

<sup>25</sup> *Id.* § 1362(14).

<sup>26</sup> *See Regulatory Definitions of Large CAFOs, Medium CAFOs, and Small CAFOs*, *supra* note 4.

<sup>27</sup> Because the NPDES permit covers CAFOs that discharge into a navigable water, “not all animal feeding operations are considered point sources for purposes of the CWA.” Madhavi Kulkarni, *Out of Sight, but Not Out of Mind: Reevaluating the Role of Federalism in Adequately Regulating Concentrated Animal Feeding*

*County of Maui v. Hawaii Wildlife Fund* that point sources do not actually need to discharge directly into navigable (and thus jurisdictional) waters to fall within the ambit of the NPDES permitting program; instead, a “functional equivalent” of a direct discharge suffices.<sup>28</sup> Applying this “functional equivalent” test to cover particular instances of CAFO groundwater contamination would provide the nation’s rural communities with a doctrinal tool that can potentially combat environmental injustices—ones that had previously been flagrant and yet hopelessly unavoidable—in a meaningful way.

This Comment argues that the “functional equivalent” test can and should extend the NPDES permitting scheme to select CAFOs that discharge pollutants into groundwater that ultimately reaches surface waters, and it offers a blueprint as to how courts should apply *Maui*’s fact-specific inquiry to reach that determination with respect to particular CAFOs. This Comment ultimately proposes an interpretive directive which offers a burden-shifting framework for the regulation of select CAFOs under the CWA. Although this Comment focuses on CAFOs, its proposed insights and framework offer similar utility beyond CAFOs and the courts.

This Comment proceeds in four parts. Part I highlights the alarming need to protect our waters from the harms of CAFOs, how the laws governing CAFOs before *Maui* have been inadequate to achieve that objective, and the emergence of the *Maui* doctrine. Part II briefly outlines some basics of groundwater hydrology before exploring the difficulties involved in establishing sufficient causation on the issue of groundwater contamination by CAFOs and illustrating how that task is not insurmountable. Part III then highlights the application of the *Maui* doctrine by demonstrating its potential coverage of actual, real-world CAFOs and argues for factors, goals, and directives that bring CAFOs that pollute into nearby waterbodies through groundwater squarely within the ambit of the Clean Water Act and the spirit of the *Maui* doctrine. Part IV discusses how the ideas and proposals advanced in this Comment are not only useful in conversations involving CAFO caselaw, but also in shaping agency memoranda, state regulations, and other potential applications of the *Maui* doctrine.

## I. CAFO WATER POLLUTION AND THE CLEAN WATER ACT

The threats to America’s precarious waters have been well-documented. According to the EPA’s most recent assessment of national water quality, nearly

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*Operations*, 44 WM. & MARY ENV’T L. & POL’Y REV. 285, 288 (2019).

<sup>28</sup> 140 S. Ct. 1462, 1468 (2020).

half of American rivers and streams are in “poor biological condition,” which “can lead to loss of fishing and recreational opportunities.”<sup>29</sup> Likewise, “more than one-third of our lakes are polluted and unfit for swimming, fishing, and drinking.”<sup>30</sup> For these contaminated freshwater sources, nutrient pollution is the primary type of contamination, within which agricultural pollution leads the way.<sup>31</sup> Harms from these agricultural practices are, in a way, twofold: not only does the agricultural industry pollute our freshwater, but it also uses a tremendous amount of that freshwater to operate.<sup>32</sup> These combined practices are especially troubling when considering that America’s groundwater reserves are ever-dwindling.<sup>33</sup> Further, when viewed in the context of climate change and the additional stresses of saltwater intrusion and other stresses onto aquifers,<sup>34</sup> the need to prudently protect our current groundwater resources from pollution is compelling. Within agricultural pollution, CAFOs are particularly problematic, producing overwhelming quantities of polluting waste that threatens water quality.<sup>35</sup> This Part provides an overview of the Clean Water Act as it relates to CAFOs, presents limitations that inhere, and discusses the emergence of the *Maui* decision along with subsequent developments.

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<sup>29</sup> *The National Rivers and Streams Assessment 2008/2009*, U.S. ENV’T PROT. AGENCY, [https://www.epa.gov/sites/production/files/2016-03/documents/fact\\_sheet\\_draft\\_variation\\_march\\_2016\\_revision.pdf](https://www.epa.gov/sites/production/files/2016-03/documents/fact_sheet_draft_variation_march_2016_revision.pdf) (last visited Dec. 17, 2021). The goal of the CWA is to make waters suitable for their designated uses, such as for fishing, recreation, agriculture, and industrial purposes. See 40 C.F.R. §131.2 (2015) (“[W]ater quality standards should, wherever attainable, provide water quality for the protection and propagation of fish, shellfish and wildlife and for recreation in and on the water . . .”).

<sup>30</sup> Melissa Denchak, *Water Pollution: Everything You Need to Know*, NRDC (May 14, 2018), <https://www.nrdc.org/stories/water-pollution-everything-you-need-know>; see also *National Lakes Assessment (NLA) 2012*, U.S. ENV’T PROT. AGENCY, [https://www.epa.gov/sites/production/files/2016-12/documents/nla\\_fact\\_sheet\\_dec\\_7\\_2016.pdf](https://www.epa.gov/sites/production/files/2016-12/documents/nla_fact_sheet_dec_7_2016.pdf) (last visited Dec. 17, 2021) (presenting conditions threatening lakes nationwide).

<sup>31</sup> Denchak, *supra* note 30.

<sup>32</sup> *Id.* (“[F]arming and livestock production us[e] about 70% of the earth’s surface water supplies.”).

<sup>33</sup> See generally Jon Heggie, *Why Is America Running Out of Water?*, NAT’L GEOGRAPHIC (Aug. 12, 2020), <https://www.nationalgeographic.com/science/2020/03/partner-content-americas-looming-water-crisis/> (highlighting how rising populations and climate change contribute to decreasing precipitation and potential future water shortages). Heggie’s article additionally notes that groundwater is already over-tapped, as it “is being pumped faster than it can be naturally replenished.” See *id.*

<sup>34</sup> See generally Timothy R. Green, Makoto Taniguchi, Henk Kooi, Jason J. Gurdak, Diana M. Allen, Kevin M. Hiscock, Holger Treidel & Alice Aureli, *Beneath the Surface of Global Change: Impacts of Climate Change on Groundwater*, 405 J. HYDROLOGY 532, 545 (2011) (discussing the impacts of climate change on groundwater resources).

<sup>35</sup> U.S. GEN. ACCOUNTING OFFICE, ANIMAL AGRICULTURE: WASTE MANAGEMENT PRACTICES 1, 5 (1999), <https://www.gao.gov/assets/rced-99-205.pdf>. The biggest source of this pollution comes from the more than “440 million tons of poop” generated by confined animals in America every year. Katie Rose Quandt, *8 Disgusting Facts About Hog Poop*, MOTHER JONES (May 21, 2014), <https://www.motherjones.com/environment/2014/05/8-disgusting-facts-about-hog-poop/>.

### A. CAFOs and the Regulatory Scheme of the Clean Water Act

The main objective of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”<sup>36</sup> Under the Act’s NPDES permitting program,<sup>37</sup> discharges of any pollutant from any point source into navigable waters is prohibited unless the polluter obtains the requisite permit.<sup>38</sup> A point source is defined as “any discernible, confined and discrete conveyance . . . from which pollutants are or may be discharged.”<sup>39</sup> Under the CWA, CAFOs are explicitly included in the definition of a point source and thus subject to NPDES permitting.<sup>40</sup> The EPA may either regulate the NPDES permitting system or delegate this responsibility to the States.<sup>41</sup>

#### 1. Limitations on Enforcement Mechanisms—Discharges into Navigable Waters

Despite CAFOs’ explicit inclusion in the definition of a point source, many limitations have moved CAFOs out of the NPDES permitting framework. A significant reason why many CAFOs do not need a permit, despite being a point source, is that they operate under a legal fiction<sup>42</sup> built upon the premise that CAFOs do not discharge into navigable waters.<sup>43</sup> Subsequently, there is no requirement to “apply for and obtain pollution discharge permits if there is no discharge of pollutants from such point sources into navigable waters.”<sup>44</sup>

In the 2003 CAFO Rule (“2003 Rule”), the EPA most notably revised the “Duty to Apply” provision.<sup>45</sup> Because there was such overwhelming evidence concerning the potential of CAFOs to discharge into navigable waters, the EPA

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<sup>36</sup> 33 U.S.C. § 1251(a).

<sup>37</sup> *Id.* § 1342.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.* § 1362(14).

<sup>40</sup> *Id.* In fact, Congress abstained from categorically recognizing any specific industrial point sources in every sector *except* CAFOs. *See id.*

<sup>41</sup> *Id.* § 1342(b).

<sup>42</sup> A legal fiction is a lie that is not meant to deceive. LON L. FULLER, *LEGAL FICTIONS* 6 (1967). Instead, many legal fictions are simply “false statement[s] recognized as having utility.” *Id.* at 9. Blackstone likewise noted that legal fictions can sometimes be “highly beneficial and useful.” 3 WILLIAM BLACKSTONE, *COMMENTARIES* 43 (1765–1769).

<sup>43</sup> *See Nat. Res. Def. Council, Inc. v. EPA*, 859 F.2d 156, 170 (D.C. Cir. 1988) (“[T]he CWA does not empower the agency to regulate point sources themselves; rather, EPA’s jurisdiction under the operative statute is limited to regulating the discharge of pollutants.”).

<sup>44</sup> Protection of Environment, 41 Fed. Reg. 11,458, 11,459 (Mar. 18, 1976).

<sup>45</sup> *See National Pollution Discharge Elimination System Permit Regulations and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs) (NPDES Guidelines and Standards)*, 68 Fed. Reg. 7176, 7176 (Feb. 12, 2003) (to be codified at 40 C.F.R. pts. 9, 122, 123, 412).

attempted to mandate that all CAFO owners and operators seek NPDES permitting, except in very limited situations where those CAFOs affirmatively demonstrate no potential to discharge.<sup>46</sup> However, several provisions of the 2003 Rule were challenged in *Waterkeeper Alliance, Inc. v. EPA*.<sup>47</sup> As a result of that challenge, the Second Circuit vacated, among other provisions, the provision that “require[d] CAFOs to apply for NPDES permits or otherwise demonstrate that they have no potential to discharge.”<sup>48</sup> In reaching this decision, the court determined that the EPA exceeded its statutory authority, which only extends to *actual* discharges.<sup>49</sup> The court found it problematic that the 2003 Rule attempted to regulate *potential* discharges, as opposed to actual discharges, because to regulate more than “actual” discharges would be to impermissibly regulate the point sources themselves.<sup>50</sup>

The 2003 Rule additionally cleared up a longstanding issue of whether CAFO-related discharges fell under the agricultural stormwater exemption to the Rule, determining that the exemption applied if the discharges were the result of precipitation from land application areas where the manure had been properly applied.<sup>51</sup> The *Waterkeeper* court agreed, determining the following:

[D]ischarges from land areas under the control of a CAFO can and should generally be regulated, but where a CAFO has taken steps to ensure appropriate agricultural utilization of the nutrients in manure, litter, and process wastewater, it should not be held accountable for any discharge that is primarily the result of “precipitation.”<sup>52</sup>

The EPA believed that this interpretation of the agricultural stormwater exemption was necessary to reconcile the exemption and the classification of CAFOs as a point source.<sup>53</sup> The Second Circuit determined that the EPA’s interpretation, which “[e]ffectively . . . included all areas of the CAFO besides

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<sup>46</sup> *Id.* at 7201.

<sup>47</sup> 399 F.3d 486, 490 (2d Cir. 2005).

<sup>48</sup> *Id.* at 524.

<sup>49</sup> *Id.* at 505.

<sup>50</sup> *See id.*; Nat. Res. Def. Council, Inc. v. EPA, 859 F.2d 156, 170 (D.C. Cir. 1988); *see also* Hannah Connor, *Comprehensive Regulatory Review: Concentrated Animal Feeding Operations Under the Clean Water Act from 1972 to the Present*, 12 VT. J. ENV’T L. 275, 305 (2011) (discussing the legal challenge to the 2003 Rule’s “Duty to Apply” provision).

<sup>51</sup> NPDES Guidelines and Standards, 68 Fed. Reg. 7176, 7267 (Feb. 12, 2003) (to be codified at 40 C.F.R. pts. 9, 122, 123, 412).

<sup>52</sup> *Waterkeeper*, 399 F.3d at 509.

<sup>53</sup> *See* Emily Kenyon, *Enough of this Manure: Why the EPA Needs to Define the Agricultural Stormwater Exemption to Limit the “Runoff” from the Alt Court*, 92 N.Y.U. L. REV. 1187, 1199 (2017).

the land application area,”<sup>54</sup> was based on “a permissible construction” of the CWA.<sup>55</sup>

In 2008, the EPA promulgated a new CAFO Rule that introduced a “propose to discharge” standard in lieu of the 2003 Rule’s already-invalidated “potential to discharge” standard, requiring CAFOs to apply for a NPDES permit if they discharged or proposed to discharge.<sup>56</sup> This change was likewise challenged and subsequently struck down when the Fifth Circuit—similar to the *Waterkeeper* court with respect to the 2003 Rule—determined that the 2008 Rule was outside of the EPA’s statutory authority as it would apply to CAFOs who did not actually discharge.<sup>57</sup>

These decisions highlight how the evolution of the law has created a catch-22 when it comes to CAFO regulation: If the only way to regulate CAFOs is to catch CAFOs illegally discharging, then how are we going to catch these illegal discharges if we are not regulating them? One author offered that “[t]he only conclusion that can be gathered from these rules leaves interpretation of the CWA in quite the conundrum: because discharges cannot be regulated until they have already occurred, in order to enforce the CWA with any effectiveness, the regulated have to violate it.”<sup>58</sup> This conundrum illustrates one aspect of how CAFO enforcement can be problematic.<sup>59</sup>

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<sup>54</sup> *Id.* at 1200.

<sup>55</sup> See *Waterkeeper*, 399 F.3d at 509.

<sup>56</sup> Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the *Waterkeeper* Decision (2008 CAFO Rule), 73 Fed. Reg. 70,418, 70,418 (Nov. 20, 2008).

<sup>57</sup> See *Nat’l Pork Producers Council v. EPA*, 635 F.3d 738, 750–51 (5th Cir. 2011) (“This definition thus requires CAFO operators whose facilities are not discharging to apply for a permit . . . . Accordingly, we conclude that the EPA’s requirement that CAFOs that ‘propose’ to discharge apply for an NPDES permit is *ultra vires* and cannot be upheld.”).

<sup>58</sup> Kristin Titley, *Environmental Law—Regulation of Concentrated Animal Feeding Operations—Reducing the Nuisance: How Arkansas Can Use its Right-to-Farm Statute to Protect Against the Destruction of CAFOs*, 37 U. ARK. LITTLE ROCK L. REV. 495, 505 (2015). See generally Christopher R. Brown, *When the “Plain Text” Isn’t So Plain: How National Pork Producers Council Restricts the Clean Water Act’s Purpose and Impairs Its Enforcement Against Factory Farms*, 16 DRAKE J. AGRIC. L. 375 (2011) (discussing enforcement of the Clean Water Act).

<sup>59</sup> To provide an illustrative analogy of this scenario, suppose a policeman in a crime-ridden neighborhood says to the residents, “If we find out about crime in this area, I will come and patrol your neighborhood. Until then, your neighborhood will not face any surveillance.” In this scenario, as in the scenario with the EPA and CAFO enforcement, there will never be any crime detection without any police patrolling the neighborhood, and conversely without any crime detection, there will never be any police patrolling the neighborhood. Thus, law enforcement is never able to detect crime—or, in the case of the EPA, enforce CAFOs.

## 2. *Limitations on Enforcement Mechanisms—Discharges into Groundwater*

Another challenge to efforts to regulate CAFOs is the limitations of the CWA as it applies to groundwater, as groundwater was purposely left out of the statute.<sup>60</sup> Additionally, the EPA “has never interpreted ‘waters of the United States’ to include groundwater.”<sup>61</sup> Congress “specifically chose not to regulate groundwater, largely because ‘the jurisdiction regarding groundwaters is so complex and varied from State to State.’”<sup>62</sup>

Although groundwater has always been left to the States, the EPA had, prior to its April 2019 Interpretive Rule, “long considered hydrologically connected groundwater as covered by the CWA.”<sup>63</sup> The EPA stated that while it never interpreted groundwater as a navigable water, its “longstanding interpretation is that point source discharge[s] of pollutants to ‘waters of the United States’ via groundwater with a direct hydrologic connection to surface waters are discharges subject to the CWA.”<sup>64</sup> This exclusion does not change the fact that the groundwater itself is not a jurisdictional water; rather, the discharge via groundwater is subject to the CWA because that groundwater has “a direct hydrologic connection to surface waters.”<sup>65</sup>

However, in 2019, the EPA reversed course under President Trump. In an Interpretative Statement addressing whether the NPDES permit program applies to releases of a pollutant from a point source to groundwater, the EPA unequivocally shut the door on groundwater regulation.<sup>66</sup>

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<sup>60</sup> See Kaela Shiigi, *Underground Pathways to Pollution: The Need for Better Guidance on Groundwater Hydrologically Connected to Surface Water*, 46 *ECOLOGY L.Q.* 519, 527 (2019) (citing *Petition for Writ of Certiorari* at 5–6, *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637 (4th Cir. 2018) (No. 18-268)).

<sup>61</sup> U.S. ENV’T PROT. AGENCY & U.S. DEP’T ARMY, TECHNICAL SUPPORT DOCUMENT FOR THE CLEAN WATER RULE: DEFINITION OF WATERS OF THE UNITED STATES 16 (2015), [https://www.epa.gov/sites/default/files/2015-05/documents/technical\\_support\\_document\\_for\\_the\\_clean\\_water\\_rule\\_1.pdf](https://www.epa.gov/sites/default/files/2015-05/documents/technical_support_document_for_the_clean_water_rule_1.pdf) [hereinafter TECHNICAL SUPPORT DOCUMENT].

<sup>62</sup> *Id.* at 16–17 (quoting S. Rep. No. 414 (1971), as reprinted in 1972 U.S.C.C.A.N. 3668, 3749).

<sup>63</sup> See Shiigi, *supra* note 60, at 528.

<sup>64</sup> TECHNICAL SUPPORT DOCUMENT, *supra* note 61, at 17.

<sup>65</sup> *Id.*

<sup>66</sup> Interpretive Statement on Application of the Clean Water Act National Pollutant Discharge System Program to Releases of Pollutants from a Point Source to Groundwater, 84 Fed. Reg. 16,810, 16,810 (Apr. 23, 2019) (concluding “the CWA is best read as excluding *all* releases of pollutants from a point source to groundwater . . . *regardless* of a hydrologic connection between the groundwater and jurisdictional surface water” (emphasis added)). This change in the EPA’s stance came as circuit courts around the country wrestled with this exact question of how to deal with pollutants that pass through groundwater while traveling from a point source to surface waters. See *supra* Part I.B (outlining relevant caselaw which led to the EPA interpretation).

## B. *The Emergence of the Maui Doctrine and Its Implications for CAFOs*

Those frustrated with the lack of mechanisms for regulating CAFO pollution may have a new doctrinal tool—one that may indeed bring CAFOs within the scope of NPDES permitting through groundwater. In the 2020 decision *County of Maui v. Hawaii Wildlife Fund*,<sup>67</sup> the Supreme Court ruled on the issue of whether the Clean Water Act requires a permit when pollutants originate from a point source but are conveyed to navigable waters through a nonpoint source, such as groundwater.<sup>68</sup> The controversy centered around the word “from,” specifically questioning what constitutes a pollutant being “from” a point source.<sup>69</sup> Prior to the Court hearing the case, circuits were split on this issue of discharges to navigable waters via groundwater. The following subparts outline the various pre-*Maui* decisions and the courts’ bases behind their legal determinations on how to treat these discharges.

### 1. *The Sixth Circuit*

The Sixth Circuit in *Kentucky Waterways Alliance v. Kentucky Utility Co.* held that discharges through groundwater are categorically excluded from the Act’s permitting requirements.<sup>70</sup> There, the court was confronted with coal ash ponds releasing pollutants through groundwater into nearby Herrington Lake.<sup>71</sup> The court rejected both of the plaintiffs’ theories: the “point source” theory<sup>72</sup> and the “hydrological connection” theory.<sup>73</sup> Taking what it believed to be a textualist approach, the Sixth Circuit rejected the idea that either groundwater or the karst<sup>74</sup> can be a “discernible” point source.<sup>75</sup> The opinion then rejected the

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<sup>67</sup> 140 S. Ct. 1462 (2020).

<sup>68</sup> *Id.* at 1468.

<sup>69</sup> *Id.* at 1470. The Court opined that what it means to be “from” somewhere can be a nuanced inquiry that often necessarily needs context; the Court offered the example that “Finland” may not be the right kind of answer to a question about where you have come from if you were only born there very long ago. *Id.*

<sup>70</sup> 905 F.3d 925 (6th Cir. 2018), *abrogated by* 140 S. Ct. 2736 (2020).

<sup>71</sup> *Id.* at 931. The ash ponds additionally sit on top of an aquifer, which expedites the rate at which the contaminated groundwater flows into the lake. *Id.*; *see also* Part II.A (discussing groundwater hydrology).

<sup>72</sup> *Id.* at 933–34.

<sup>73</sup> *Id.* at 934, 936.

<sup>74</sup> Karst terrain has distinctive landforms that are created by erosion of highly soluble subsurface rock like limestone, dolostone, marble, gypsum, and halite, which then creates a series of caverns, tunnels, and paths. *See id.* at 931; *Caves & Karst: Educational Resources*, U.S. DEP’T AGRIC., <https://www.fs.usda.gov/managing-land/natural-resources/geology/caveskarst/educational-resources> (last visited Dec. 17, 2021) (“In karst, spaces or conduits form in the subsurface that allow for rapid movement of groundwater. Water moves quickly from the earth’s surface underground in these places.”).

<sup>75</sup> The court disagreed that groundwater or the karst could be a discrete conveyance, noting that groundwater by nature “seeps in all directions, guided only by the general pull of gravity.” *Kentucky Waterways*, 905 F.3d at 933. The karst-as-a-point-source argument likewise does not hold because it “still treats the

hydrological connection theory because “for a point source to discharge *into* navigable waters, it must dump *directly* into those navigable waters . . . [There is] no room for intermediary mediums to carry the pollutants.”<sup>76</sup> The Sixth Circuit believed that “[r]eading the CWA to cover groundwater pollution . . . would upend the existing regulatory framework.”<sup>77</sup>

## 2. *The Fourth Circuit*

The Fourth Circuit in *Upstate Forever v. Kinder Morgan Energy Partners* utilized a “direct hydrological connection” test.<sup>78</sup> Kinder Morgan Energy Partners, L.P. owned a pipeline that ruptured, spilling several hundred thousand gallons of gasoline into navigable waters.<sup>79</sup> Before reaching those waters, the pollutants allegedly passed a short distance through groundwater.<sup>80</sup> Relying on the plain text of the CWA, the court held that a discharge into navigable waters need not come *directly* from a point source;<sup>81</sup> looking to the statute, the opinion observes that the word “from” in the context of a discharge being “from” a point source indicates only a starting point, which “need not also convey the discharge directly to navigable waters.”<sup>82</sup>

## 3. *The Ninth Circuit*

The Ninth Circuit in *Hawaii Wildlife Fund v. County of Maui* adopted a “fairly traceable” test.<sup>83</sup> The County of Maui owned and operated a municipal wastewater reclamation facility that disposed its treated sewage by injecting the treated wastewater hundreds of feet underground into groundwater via its wells.<sup>84</sup> That groundwater then traveled roughly half of a mile before reaching the Pacific Ocean.<sup>85</sup> The appellate court determined that the effluent here did come “from” the injection wells and “just also travel[ed] through groundwater

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groundwater system as the point source.” *Id.* at 934.

<sup>76</sup> *Id.* at 934.

<sup>77</sup> *Id.* at 937.

<sup>78</sup> *Upstate Forever v. Kinder Morgan Energy Partners, L.P.*, 887 F.3d 637, 651 (4th Cir. 2018), *vacated*, 140 S. Ct. 2736 (2020).

<sup>79</sup> *Id.* at 641.

<sup>80</sup> *Id.* Here, the distance traveled was alleged to be about 1,000 feet or less from the pipeline to the navigable waters. *Id.* at 651–52.

<sup>81</sup> *Id.* at 649–50.

<sup>82</sup> *Id.* at 650.

<sup>83</sup> *Haw. Wildlife Fund v. County of Maui*, 886 F.3d 737, 749 (9th Cir. 2018), *vacated*, 140 S. Ct. 1462 (2020).

<sup>84</sup> *See id.* at 742.

<sup>85</sup> *Id.* at 747 (stating that studies “establishe[d] effluent injected into the wells travels[,] . . . appearing in submarine springs only a half-mile away”).

before entering the Pacific Ocean.”<sup>86</sup> Thus, the county’s wells were point sources subject to NPDES regulation.<sup>87</sup>

#### 4. *The Supreme Court’s Resolution in Maui*

The Supreme Court in *Maui* resolved this circuit split in 2020, granting certiorari to review the Ninth Circuit’s decision.<sup>88</sup> In answering the question presented,<sup>89</sup> the Court reiterated that the main issue here involved an interpretation of the CWA concerning the word “from” and whether a pollutant is “from” a point source.<sup>90</sup> The majority opinion, penned by Justice Breyer, began by rejecting both the lower circuit court’s “fairly traceable” approach<sup>91</sup> and the county of Maui’s interpretation that the statute’s permitting requirement did not apply if a pollutant must travel through any amount of groundwater before reaching navigable waters.<sup>92</sup> In determining the appropriate legal standard, the Court “[did] not defer here to EPA’s interpretation of the statute embodied in this practice.”<sup>93</sup> Regardless of that determination, the Court found the EPA’s interpretation to be an unreasonable one that would not have received *Chevron* deference, as “[t]he absurdity of such an interpretation is obvious enough.”<sup>94</sup> Given that the Court rejected the interpretations offered by both sides

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<sup>86</sup> *Id.* at 746. The Ninth Circuit opinion went on to assert that it did not find it important that the pollutants travelled through the ground before eventually entering surface water because the pollutants were still *from* a point source. *See id.* at 746–47.

<sup>87</sup> *See id.* at 749.

<sup>88</sup> *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1462 (2020).

<sup>89</sup> The Supreme Court was presented with the question of “whether the Act ‘requires a permit when pollutants originate from a point source but are conveyed to navigable waters by a nonpoint source,’ here, ‘groundwater.’” *Id.* at 1468.

<sup>90</sup> *See id.* at 1470.

<sup>91</sup> The Court believed that interpretation of the word “from” to such an extreme extent “would require a permit in surprising, even bizarre circumstances,” and that “Congress did not intend the point source-permitting requirement to provide EPA with such broad authority as the Ninth Circuit’s narrow focus on traceability would allow.” *Id.* at 1471. The Court offered a few examples of these unforeseen circumstances, suggesting “pollutants carried to navigable waters on a bird’s feathers, or, to mention more mundane instances, the 100-year migration of pollutants through 250 miles of groundwater to a river.” *Id.*

<sup>92</sup> *Id.* at 1473 (determining that interpretation was “too narrow, for it would risk serious interference with EPA’s ability to regulate ordinary point source discharges”).

<sup>93</sup> *Id.* The Court notes that the “EPA itself has changed its mind about the meaning of the statutory provision.” *Id.* Furthermore, the Court found noteworthy that no party, including the Solicitor General, “has asked us to give . . . *Chevron* deference to EPA’s interpretation of the statute.” *Id.* at 1474 (citing *Chevron U.S.A. Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837, 844, 865 (1984) (establishing the doctrine of *Chevron* deference)).

<sup>94</sup> *Id.* at 1476. The Court believes that such an interpretation would be “inconsistent with the statutory text and simultaneously create[] a massive loophole in the permitting scheme that Congress established.” *Id.*

as “too extreme,”<sup>95</sup> the Court then proceeded to offer what it believed to be a fair middle ground.

The Supreme Court in *Maui*, in an effort to balance Congress’s basic aim,<sup>96</sup> held that the CWA requires a NPDES permit “when there is a direct discharge from a point source into navigable waters or when there is the *functional equivalent of a direct discharge*.”<sup>97</sup> Recognizing the difficulties of determining what constitutes “functional equivalence,” the Court proceeded to offer some semblance of guidance. First, the Court noted the obvious importance of time and distance as factors to heavily consider.<sup>98</sup> Second, the majority offered seven concededly non-exhaustive factors to consider when making determinations of “functional equivalence”:

(1) [T]ransit time, (2) distance traveled, (3) the nature of the material through which the pollutant travels, (4) the extent to which the pollutant is diluted or chemically changed as it travels, (5) the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source, (6) the manner by or area in which the pollutant enters the navigable waters, [and] (7) the degree to which the pollution (at that point) has maintained its specific identity.<sup>99</sup>

The Court believed that this flexible test would be the best option because the facts of “functional equivalence” analyses can vary widely and different factors may merit more attention in different situations.<sup>100</sup> The Court further adopted a favorable view of letting judges establish the law through decisions in individual cases, which would “provide examples that in turn lead to ever more refined principles.”<sup>101</sup> Determining that this common-law approach can be useful, “even in an era of statutes,”<sup>102</sup> the Court indicated a concern that a more absolute, less fact-dependent test, though perhaps clearer to apply, may be inconsistent with

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<sup>95</sup> *Id.*

<sup>96</sup> The Court believed that aim to be “provid[ing] federal regulation of identifiable sources of pollutants entering navigable waters without undermining the States’ longstanding regulatory authority over land and groundwater.” *Id.* at 1476.

<sup>97</sup> *Id.* The Court elaborated that an addition falls within the statutory requirement that it be “from any point source” when the point source either directly deposits the pollutants into navigable waters “or when the discharge reaches the same result through roughly similar means.” *Id.* (emphasis added).

<sup>98</sup> *See id.* (“Time and distance are obviously important.”); *id.* at 1477 (“Time and distance will be the most important factors in most cases, but not necessarily every case.”).

<sup>99</sup> *Id.* at 1476–77.

<sup>100</sup> *See id.* at 1476 (“But there are too many potentially relevant factors applicable to factually different cases for this Court now to use more specific language.”).

<sup>101</sup> *Id.* at 1477.

<sup>102</sup> *Id.*

the goals of the CWA.<sup>103</sup> At the end of the day, district courts have sufficient guidance in light of the CWA's basic objectives; the Court asserted that “[d]ecisions should not create serious risks either of undermining state regulation of groundwater or of creating loopholes that undermine the statute's basic federal regulatory objectives.”<sup>104</sup>

In the wake of the 2020 *Maui* decision, lower courts around the country will likely need to apply this less-than-clear “functional equivalence” doctrine—not only to injection wells of wastewater treatment facilities, as was the case in *Maui*, but also to challenges in other applications of the CWA as they arise.<sup>105</sup> This Comment will argue that courts across the nation should capitalize on the fact-specific inquiry and develop case law applying the “functional equivalence” doctrine to CAFOs.

### 5. *Lessons from EPA's Post-Maui Guidance Memorandum (and Subsequent Rescission)*

On December 10, 2020, more than seven months after the *Maui* decision, the EPA released a Federal Register notice with draft guidance that attempted to clarify how courts should apply the *Maui* decision and when a NPDES permit might be necessary under the Clean Water Act.<sup>106</sup> However, the EPA rescinded the guidance in September 2021 under the Biden Administration.<sup>107</sup> In the original Trump-era EPA memorandum, the agency solicited comments for a thirty-day period and proceeded to adopt the memorandum on January 13,

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<sup>103</sup> *See id.* (noting that a more absolute position might “have consequences that are inconsistent with major congressional objectives, as revealed by the statute's language, structure, and purposes”).

<sup>104</sup> *Id.*

<sup>105</sup> The *Maui* doctrine finds potential for applicability across many industries and sources of water pollution; for instance, the issue of septic systems came up in the Petitioner's Brief and again in oral arguments. *See* Brief for Petitioner at 20, *Maui*, 140 S. Ct. 1462 (No. 18-260); Transcript of Oral Argument at 40, *Maui*, 140 S. Ct. 1462 (No. 18-260) (noting Justice Alito asked counsel whether an ordinary family with a septic tank might be required to have a permit under the Clean Water Act). Although this Comment's discussion and solutions may be relevant to issues surrounding septic tanks, it focuses on CAFOs and does not explore the potential application to septic systems.

<sup>106</sup> Applying the Supreme Court's *County of Maui v. Haw. Wildlife Fund* Decision in the Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit, 85 Fed. Reg. 79,489 (proposed Dec. 10, 2020). This document “does not have the force and effect of law and it does not bind the public in any way . . . [and] intends only to provide clarity to the public regarding existing requirements under the law or Agency policies.” *Id.*

<sup>107</sup> Memorandum from Radhika Fox, Assistant Adm'r, EPA, Rescission of the January 2021 Guidance Document, “Applying the Supreme Court's *County of Maui v. Haw. Wildlife Fund* Decision in the Clean Water Act Section 402 National Pollutant Discharge Elimination Sys. Permit Program” (Sept. 15, 2021) (on file at [https://www.epa.gov/system/files/documents/2021-09/maui-rescission-memo\\_final-09.15.2021.pdf](https://www.epa.gov/system/files/documents/2021-09/maui-rescission-memo_final-09.15.2021.pdf)).

2021.<sup>108</sup> The guidance memorandum began by reiterating (1) that an actual discharge of a pollutant into waters of the United States (WOTUS) is a threshold condition to triggering the need for a NPDES permit<sup>109</sup> and (2) that this discharge must be from a *point source*.<sup>110</sup> When it comes to determining whether an actual discharge of a pollutant is flowing to a WOTUS via groundwater and, if so, whether any such discharge amounts to the functional equivalent of a direct discharge into a WOTUS, the EPA “recommend[ed] considering whether conducting a technical analysis would be prudent.”<sup>111</sup> The memorandum then proceeded to highlight that “functional equivalent” discharges presumably comprise a subset of discharges of pollutants to groundwater that ultimately reach a jurisdictional water,<sup>112</sup> and that the agency anticipated groundwater permits to be few moving forward.<sup>113</sup>

Perhaps of greatest significance at the time, the memorandum identified an additional factor beyond those enumerated by the *Maui* court—the design and performance of the system from which the pollutant is released,<sup>114</sup> an inquiry which potentially would have “inform[ed] the scope and extent of the ‘functional equivalent’ analysis and . . . the factors identified in *Maui*.”<sup>115</sup> Expounding upon distinctions among systems, the memorandum opined that a system that “is designed and performs to discharge pollutants from a point source through groundwater and into a [WOTUS]”<sup>116</sup> may be more likely to require a permit. The memorandum explained the factors as the following:

[I]f a facility is designed and performs with a storage, treatment or containment system such as a septic system, cesspool or settling pond; if the facility is operating as a runoff management system, such as with stormwater controls, infiltration or evaporation systems or other green infrastructure; or if the facility operates water reuse, recycling or

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<sup>108</sup> Applying the Supreme Court’s *County of Maui v. Haw. Wildlife Fund* Decision in the Clean Water Act Section 402 National Pollutant Discharge Elimination System Permit Program, 86 Fed. Reg. 6, 321 (proposed Dec. 10, 2020).

<sup>109</sup> Memorandum from EPA on Applying the Supreme Court’s *County of Maui v. Haw. Wildlife Fund* Decision in the Clean Water Act Section 402 Nat’l Pollutant Discharge Elimination Sys. Permit Program 1 (January 21, 2021).

<sup>110</sup> *Id.* at 1–2.

<sup>111</sup> *Id.* at 4.

<sup>112</sup> *Id.* at 6.

<sup>113</sup> *Id.* at 6–7.

<sup>114</sup> *Id.* at 7.

<sup>115</sup> *Id.*

<sup>116</sup> *Id.* at 8.

groundwater recharge facilities, and these system components in fact abate discharges of pollutants to [WOTUS].<sup>117</sup>

This scheme tended to require permits for systems designed to discharge into groundwater more than for systems that end up doing so incidentally, and thus the memorandum excluded entire classes of pollutants.<sup>118</sup>

This memorandum, drafted under the Trump Administration, attempted to limit *Maui* to its particular facts and give courts a path to largely disregard the *Maui* decision.<sup>119</sup> The Trump-era EPA attempted to construct a narrow interpretation of *Maui*, under which the “functional equivalent” test only covered discharges *designed* to go directly into groundwater.<sup>120</sup> Although the EPA had discretion in issuing this memorandum and such identification of additional relevant factors was specifically contemplated by the *Maui* decision,<sup>121</sup> these factors lacked the force and effect of law. Furthermore, this guidance memorandum came in the eleventh hour of a Trump Administration that was attempting to enact many last-minute (and arguably anti-) environmental policies.<sup>122</sup>

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<sup>117</sup> *Id.*

<sup>118</sup> For example, mining, agriculture, CAFOs, and coal ash ponds contribute to water pollution without being designed to do so. *See id.* at 7.

<sup>119</sup> Others share this Comment’s sentiment that a keen interpretation of the memorandum detects a subtle but unmistakable intent to limit *Maui*. For example, as put by Anna Viele, “[a]ll of these suggestions signal the Trump EPA would rather encourage fewer instances of required NDPES permits being issued.” Anna Viele, *EPA’s Groundwater Guidance is Vague, Not Likely to Be Finalized*, BICK LAW LLP (Dec. 15, 2020), <https://www.bicklawllp.com/our-insights/functional-equivalency/>; *see also* Juan Carlos Rodriguez, *EPA’s Groundwater Guidance Leaves Permitting Murkiness*, LAW360 (Dec. 8, 2020, 8:34 PM), <https://www.law360.com/articles/1335754/epa-s-groundwater-guidance-leaves-permitting-murkiness> (“[The memorandum] seems to paint a picture of an EPA that’s reluctant to endorse a broad view of new permitting authority.”).

<sup>120</sup> EPA, *supra* note 109, at 7.

<sup>121</sup> *See County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1477 (2020) (“EPA, too, can provide administrative guidance (within statutory boundaries) in numerous ways . . .”).

<sup>122</sup> *See, e.g.*, Isaac Arnsdorf, Lydia DePilllis, Dara Lind, Lisa Song, Moiz Syed & Zipporah Osei, *Tracking the Trump Administration’s “Midnight Regulations,”* PROPUBLICA (Nov. 25, 2020), <https://projects.propublica.org/trump-midnight-regulations/> (listing dozens of arguably anti-environmental rules pushed through in the final weeks of the Trump Administration, including the exemption of certain polluters from EPA greenhouse gas regulations and exclusion of scientific studies from environmental policymaking, among others).

Many predicted that the Biden Administration would rescind the Trump-era memorandum<sup>123</sup>—a prediction which proved correct.<sup>124</sup> The rescission asserted that the agency’s prior position “was issued without proper deliberation” and vowed “to apply site-specific, science-based evaluations” to evaluate these discharges in the meantime as it considered how to proceed.<sup>125</sup> This back-and-forth is a reminder of two things: (1) environmental protection does not escape the tides of politics, and (2) the judiciary still has ultimate authority as long as these interpretations lack the force of law. The power, in short, still lies within the courts.

## II. HYDROLOGY OF GROUNDWATER AND ESTABLISHING SUFFICIENT CAUSATION

To sufficiently allege in a CWA legal challenge that the *Maui* doctrine might apply to a CAFO, a plaintiff must fulfill the requirements of Article III standing.<sup>126</sup> To establish the requisite causal connection between the injury and the discharge, “Article III only requires the plaintiff to show that the injury is fairly traceable to the defendant’s conduct.”<sup>127</sup> Under this standard, a suit “need not establish to a scientific certainty that the defendant’s action alone caused the precise injury sustained by the plaintiff in order for the plaintiff to have standing,”<sup>128</sup> and “[l]aboratory testing indicating the presence of pollution may demonstrate a causal connection between the defendant’s conduct and the

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<sup>123</sup> Anna Viele writes the following:

This [guidance] is not likely to continue with the EPA under Biden. In fact, critics suggest this memo seems to be written with the assumption there would be a second term for Donald Trump. . . . The Biden administration is not likely to endorse this policy, and may very well dispense with it shortly after taking office. Even in this unlikely event the administration does not prioritize retracting this policy, it’s not likely to have much effect, given its broad scope and lack of specificity.

Viele, *supra* note 119; *see also* Rodriguez, *supra* note 119 (“This is the dying gasp of an administration that tried and failed to gut the Clean Water Act in the Supreme Court. . . . They are one foot out the door and we hope and expect that the Biden administration will throw this in the dumpster.” (quoting Earthjustice attorney David Henkin)).

<sup>124</sup> Memorandum from Radhika Fox, *supra* note 107.

<sup>125</sup> *See id.*

<sup>126</sup> *See, e.g.,* Lujan v. Defs. of Wildlife, 504 U.S. 555, 560–62 (1992) (discussing the requirements to satisfy constitutional standing under Article III).

<sup>127</sup> Colleen K. Sanson, *Proof of Standing in Environmental Citizen Suits*, 157 AM. JUR. PROOF OF FACTS 3d 1, § 4 (Sept. 2021).

<sup>128</sup> *Id.* Additionally, where a plaintiff has alleged that a particular polluting source is the cause of her injury, and the owner of that source does not offer an alternative culprit, the “fairly traceable” requirement “can be said to be fairly met.” *Sierra Club v. Franklin Cnty. Power of Ill., LLC*, 546 F.3d 918, 926–27 (7th Cir. 2008) (citing *Friends of the Earth v. Gaston Copper Recycling Corp.*, 204 F.3d 149, 162 (4th Cir. 2000)).

plaintiff's harm."<sup>129</sup> This "fairly traceable" standard, if unmet, will result in a failure to state a legally cognizable claim.<sup>130</sup> Therefore, to establish Article III standing, a CWA claim must sufficiently demonstrate a causal link that the CAFO is polluting into groundwater that in turn feeds into jurisdictional surface waters.

This Part demonstrates that establishing causation—that a CAFO in fact does discharge into groundwater and such discharge causes surface water contamination—is not an insurmountable task in light of our existing body of scientific knowledge concerning groundwater flow and ever-emerging developments in pollutant tracing. This task is easily achievable, particularly when considered against the backdrop of existing legal standards pertaining to sufficient demonstration of Article III causation.

Section A of this Part provides a brief overview of the basics of groundwater hydrology and the difficulties that inhere when it comes to establishing sufficient scientific linkage between CAFOs and ground and surface water contamination. Section B explores scientific studies that have linked CAFOs to groundwater contamination and emergent scientific testing mechanisms available to CWA plaintiffs. Additionally, section B describes how those tools sufficiently meet the existing requirements of Article III standing as established by existing case law.

#### *A. Groundwater Hydrology and the (Not So Difficult) Task of Proving Connection*

Groundwater is located beneath the land's surface, moves underground in tremendous quantities,<sup>131</sup> and is significantly interconnected with and interacts with surface waters.<sup>132</sup> Both groundwater and surface water can feed into the other, and if either is contaminated, the other can be contaminated as a result.<sup>133</sup> For instance, a surface stream may interact with groundwater in three basic ways: it may (1) gain water from the *inflow* of groundwater through the streambed; (2) lose water to groundwater via *outflow* to groundwater; or (3) both

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<sup>129</sup> *Sanson*, *supra* note 127.

<sup>130</sup> *Id.*

<sup>131</sup> According to the National Geographic Society, "[h]ydrologists estimate . . . U.S. groundwater reserves to be at least 33,000 trillion gallons." *Groundwater Facts*, NAT'L GROUND WATER ASS'N, <https://www.ngwa.org/what-is-groundwater/About-groundwater/groundwater-facts> (last visited Dec. 17, 2021).

<sup>132</sup> See THOMAS C. WINTER, JUDSON W. HARVEY, O. LEHN FRANKE & WILLIAM M. ALLEY, *GROUND WATER AND SURFACE WATER: A SINGLE RESOURCE 1* (1998).

<sup>133</sup> *Id.* ("For example, contaminated aquifers that discharge to streams can result in long-term contamination of surface water; conversely, streams can be a major source of contamination to aquifers.").

gain and lose some water.<sup>134</sup> How the water flows depends on the water table,<sup>135</sup> as the altitude of the water table (below which is filled with groundwater) determines whether groundwater will discharge into a stream channel or vice versa.<sup>136</sup> Either way, surface waters “constantly mix with underlying groundwater, and this exchange facilitates chemical interactions that can affect the characteristics of downstream aquatic systems.”<sup>137</sup>

While science has established that surface water and groundwater may oftentimes feed into one another through hydraulic connection, “the interactions are difficult to observe and measure and commonly have been ignored in water-management considerations and policies.”<sup>138</sup> A practical limitation facing prospective plaintiffs alleging CAFO contamination of surface waters via groundwater is the burden of demonstrating a causal connection between the two and establishing that contaminants found in the surface water originated from a particular responsible CAFO.<sup>139</sup>

One of the most common ways to confirm a hydrological connection between the groundwater and the surface water is via dye tracers, which “are designed to answer the basic question of connection.”<sup>140</sup> Dye tracers essentially serve to add a label to groundwater, flagging it for when it ultimately turns up at a different location.<sup>141</sup> Fluorescent dyes are the most commonly used groundwater tracers, as they are intrinsically low in toxicity and, importantly, are “unambiguously and inexpensively detectable at very small concentrations.”<sup>142</sup> In fact, the Complaint filed by the plaintiffs in *Kentucky*

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<sup>134</sup> See *id.* at 9.

<sup>135</sup> See *Water Table*, NAT’L GEOGRAPHIC: RES. LIBRARY, <https://www.nationalgeographic.org/encyclopedia/water-table/> (last visited Dec. 17, 2021) (defining water table).

<sup>136</sup> The water table must be higher in altitude compared to the stream channel for groundwater to discharge into the stream channel and must conversely be lower than the altitude of the stream-water surface for surface water to seep into groundwater. WINTER ET AL., *supra* note 132, at 9.

<sup>137</sup> Shiigi, *supra* note 60, at 534 (citations omitted).

<sup>138</sup> WINTER ET AL., *supra* note 132, at 1. Furthermore, different seasons and climate settings can affect the streamflow between ground and surface waters. See *id.* at 12; see also Shiigi, *supra* note 60, at 535 (illustrating how point sources can impact navigable surface waters through hydrologically connected groundwater).

<sup>139</sup> Practically, a CAFO defending from such a claim could simply assert that there are many CAFOs in the area, that its own system is kosher and not a contributing factor, and that it must be another CAFO responsible. Of course, if all the operations in a certain area are owned by a single company, that potential defense would be unavailable.

<sup>140</sup> Todd R. Kincaid, *Groundwater Tracing in the Woodville Karst Plain—Part I: An Overview of Groundwater Tracing*, GLOB. UNDERWATER EXPLORERS, <https://www.gue.com/groundwater-tracing> (last visited Dec. 17, 2021).

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

*Waterways Alliance v. Kentucky Utilities Co.*<sup>143</sup> relied in part on dye trace studies to determine that the surface waterbodies were hydrologically connected to the ash ponds via groundwater.<sup>144</sup> The study in *Maui* similarly involved placing tracer dye into each of the injection wells “to see if and when the dye would flow into the ocean.”<sup>145</sup>

Additionally, a number of scientific studies link CAFOs to groundwater contamination. For instance, in 2006, a scientific study conclusively demonstrated that CAFOs can contaminate shallow groundwater, finding antibiotic-resistant *E. coli* strains present in groundwaters of swine farms with a typical lagoon and land application system for waste management.<sup>146</sup> There, four site studies with known groundwater flow paths were monitored over the course of one and a half years, and *E. coli* levels were found to be significantly higher at the swine farm sites than at the reference sites.<sup>147</sup>

Once groundwater has been polluted, that water, like “[v]irtually all water, polluted or not, eventually makes its way to navigable water.”<sup>148</sup> Subsurface water flow supplies “a significant portion of the total flow of many rivers, [so] contaminated groundwater can be a source of contamination of surface waters.”<sup>149</sup> Additionally, studies have found that the movement of shallow groundwater is lateral toward streams.<sup>150</sup> For CAFOs, Dr. Michael Mallin explains that “[t]he water in the aquifer will move downslope until it encounters a surface-water body, generally streams.”<sup>151</sup> In short, as much as we might think

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<sup>143</sup> 905 F.3d 925 (6th Cir. 2018).

<sup>144</sup> Complaint at 14, *Ky. Waterways All. v. Ky. Utils. Co.*, 303 F. Supp. 3d 530 (E.D. Ky. 2017) (No. 5:17-cv-00292-DCR).

<sup>145</sup> *Haw. Wildlife Fund v. County of Maui*, 24 F. Supp. 3d 980, 984 (D. Haw. 2014).

<sup>146</sup> M.E. Anderson & M.D. Sobsey, *Detection and Occurrence of Antimicrobially Resistant E. Coli in Groundwater on or Near Swine Farms in Eastern North Carolina*, 54 *WATER SCI. & TECH.* 211, 218 (2006) (available at <https://der.lib.unc.edu/indexablecontent/uuid:11a17721-68c4-47a2-9951-b46630751c34>)

<sup>147</sup> *E. coli* is commonly used to indicate fecal contamination of water. *Id.*

<sup>148</sup> *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1470 (2020). This pathway applies just as much to groundwater. See generally VAN NOSTRAND’S SCIENTIFIC ENCYCLOPEDIA 1646–51 (8th ed. 1995) (defining hydrology).

<sup>149</sup> Michelle B. Nowlin, *Sustainable Production of Swine: Putting Lipstick on a Pig*, 37 *VT. L. REV.* 1079, 1088 (2013) (citing Michael Mallin, *Impacts of Industrial Animal Production on Rivers and Estuaries*, 88 *AM. SCIENTIST* 2, 11 (2000)).

<sup>150</sup> See, e.g., J. W. GILLIAM, R. L. HUFFMAN, R. B. DANIELS, D. E. BUFFINGTON, A. E. MOREY & S. A. LECLERC, CONTAMINATION OF SURFICIAL AQUIFERS WITH NITROGEN APPLIED TO AGRICULTURAL LAND 1 (1996).

<sup>151</sup> Adam Skolnick, *The CAFO Industry’s Impact on the Environment and Public Health*, SIERRA CLUB (Feb. 23, 2017), <https://www.sierraclub.org/sierra/2017-2-march-april/feature/cafo-industry-impact-environment-and-public-health>.

of surface water and groundwater as distinct entities, we cannot ignore the reality of their interconnectedness.

### *B. Testing Mechanisms to Establish Causation*

CAFO point source pollution into groundwater can come from leaking manure storage areas, and the pollutants that come with manure<sup>152</sup> have a number of properties that can serve as “fingerprints” of CAFO pollution.<sup>153</sup> This section discusses different pollutants, the mechanisms for measuring them, and the effectiveness, reliability, and acceptance of those mechanisms.

Nitrate is the most frequently measured manure pollutant, as it is both (1) a common pollutant associated with known health risks and (2) affordable to measure using a range of available instruments.<sup>154</sup> In the context of CAFOs, however, nitrate testing has an important limitation. Nitrate can come from several different sources beyond just CAFOs,<sup>155</sup> and even if it were determined that it came from a CAFO, testing would not be able to determine which particular CAFO the nitrate is coming from if there are a number of nearby CAFOs in the area.<sup>156</sup>

Another mechanism to track the source of water pollution is through bacteria. Bacteria is a common indicator of manure pollution in groundwater,<sup>157</sup> and advanced analysis of bacterial contamination can be done through Microbial Source Tracking (MST).<sup>158</sup> Utilizing different types of MST methods can provide an accurate attribution of the bacteria to specified sources.<sup>159</sup> For

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<sup>152</sup> Tarah Heinzen & Abel Russ, *Using Emerging Pollution Tracking Methods to Address the Downstream Impacts of Factory Farm Animal Welfare Abuse*, 31 PACE ENV'T L. REV. 475, 488 (2014) (“The pollutants that come with manure include nitrogen compounds (e.g., ammonia and nitrate), phosphorus compounds, bacteria, and all of the pharmaceuticals that are used in the industrial animal-raising process, mainly antibiotics and hormones.”).

<sup>153</sup> *Id.*

<sup>154</sup> Nitrate can be measured affordably and instantly with instruments such as colorimetric strips and photometers. Heinzen & Russ, *supra* note 152, at 488–89. It can alternatively or additionally be sent to a laboratory for more reliable analysis. See, e.g., 5.7 Nitrates, EPA: WATER: MONITORING & ASSESSMENT, <https://archive.epa.gov/water/archive/web/html/vms57.html> (Mar. 6, 2012).

<sup>155</sup> Nitrate might not necessarily be from, say, a storage pit of manure; because of its ubiquitous nature, it could have come from another source like synthetic fertilizer application or a septic tank. Heinzen & Russ, *supra* note 152, at 489.

<sup>156</sup> Nitrate can remain in groundwater for years or decades, so its source is difficult to be determined with certainty. See *id.* at 489–90.

<sup>157</sup> *Id.* at 490.

<sup>158</sup> MST encompasses many distinct methods, using both genotypic and phenotypic methods. *Id.*

<sup>159</sup> Bacteroides PCR assays, a genotypic method, can accurately attribute fecal bacteria to human, bovine, equine, or swine sources. Alice Layton, Larry McKay, Dan Williams, Victoria Garrett, Randall Gentry & Gary Sayler, *Development of Bacteroides 16S rRNA Gene TaqMan-Based Real-Time PCR Assays for Estimation of*

instance, genotypic methods are able to accurately attribute fecal bacteria to specific sources,<sup>160</sup> and phenotypic methods have been able to successfully identify host species.<sup>161</sup> Identifying source animals can also be tackled by “fecal source tracking,” which analyzes mitochondrial DNA through application of polymerase chain reactions (PCR).<sup>162</sup>

Livestock are commonly given various substances to maximize their growth while shielding them from disease. A few additives worth mentioning include antibiotics, hormones, and metals such as arsenic.<sup>163</sup> Antibiotics, of course, encourage livestock growth and stave off disease.<sup>164</sup> With antibiotic use, however, comes development of resistant strains of bacteria in the host animals’ digestive tracts.<sup>165</sup> The technique of taking a water sample culturing the bacteria can successfully identify host species and, combined with the MST approach, has successfully mapped the migration of contamination from swine lagoons to underlying groundwater.<sup>166</sup> Furthermore, some antibiotics are exclusively used in specific types of livestock, and therefore detection of those antibiotics in ground and surface waters can evince that contamination originated from a particular subset of animals.<sup>167</sup> Hormones can indicate waste contamination, as

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*Total, Human, and Bovine Fecal Pollution in Water*, 72 APPLIED & ENV’T MICROBIOLOGY 4214, 4215 (2006).

<sup>160</sup> Heinzen & Russ, *supra* note 152, at 491 (showing 100% true-positive identification and 0% false-positive identification, for a bovine assay (citing Layton, *supra* note 159, at 4220)).

<sup>161</sup> See, e.g., Troy M. Scott, Joan B. Rose, Tracie M. Jenkins, Samuel R. Farrah & Jerzy Lukasiak, *Microbial Source Tracking: Current Methodology and Future Directions*, 68 APPLIED & ENV’T MICROBIOLOGY 5796, 5799 (2002) (detailing a study that identifies sources of fecal pollution by using antibiotic resistance profiles).

<sup>162</sup> See William B. Schill & Melvin V. Mathes, *Real-Time PCR Detection and Quantification of Nine Potential Sources of Fecal Contamination by Analysis of Mitochondrial Cytochrome b Targets*, 42 ENV’T SCI. & TECH. 5229, 5231 (2008). PCR copies small segments of DNA that can then be used in a number of laboratory and clinical techniques, including DNA fingerprinting and detection of bacteria or viruses. See generally *Polymerase Chain Reaction (PCR) Fact Sheet*, NAT’L HUM. GENOME RSCH. INST., <https://www.genome.gov/about-genomics/fact-sheets/Polymerase-Chain-Reaction-Fact-Sheet> (Aug. 17, 2020) (providing an overview on PCR).

<sup>163</sup> EPA OFF. OF RSCH. & DEV., EPA/600/R-04/042, RISK ASSESSMENT EVALUATION FOR CONCENTRATED ANIMAL FEEDING OPERATIONS 24 (2004).

<sup>164</sup> See generally *The Facts About Antibiotics in Livestock & Poultry Production*, N. AM. MEAT INST., <https://www.meatinstitute.org/index.php?ht=a/GetDocumentAction/i/99943> (last visited Dec. 17, 2021) (providing a brief overview of the role of antibiotics in livestock and poultry production).

<sup>165</sup> See U.S. ENV’T PROT. AGENCY, OFF. OF WATER, EPA 820-R-13-002, LITERATURE REVIEW OF CONTAMINANTS IN LIVESTOCK AND POULTRY MANURE AND IMPLICATIONS FOR WATER QUALITY 49–56 (2013).

<sup>166</sup> See S. Koike, I. G. Drapac, H. D. Oliver, A. C. Yannarell, J. C. Chee-Sanford, R. I. Aminov & R. I. Mackie, *Monitoring and Source Tracking of Tetracycline Resistance Genes in Lagoons and Groundwater Adjacent to Swine Production Facilities over a 3-Year Period*, 73 APPLIED & ENV’T. MICROBIOLOGY 4813, 4813 (2007).

<sup>167</sup> See EPA REGION 10 OFF. OF ENV’T ASSESSMENT, EPA 910-R-12-003, RELATION BETWEEN NITRATE IN WATER WELLS AND POTENTIAL SOURCES IN THE LOWER YAKIMA VALLEY, WASH. 25 (2012) (illustrating veterinary pharmaceuticals and their FDA-approved uses).

researchers have been able to detect particular hormones,<sup>168</sup> such as estrogen, that are more likely to be associated with specific animal sources.<sup>169</sup> When it comes to metals, animal feeds often contain arsenic, copper, and zinc.<sup>170</sup> Because the EPA has estimated that most of these metals are ultimately excreted, signs of these metals can be traced back to feeding operations.<sup>171</sup>

### C. Sufficiently Stating a Claim Against a Polluting CAFO

To successfully state a claim upon which relief can be granted, plaintiffs should recognize that federal courts have shifted away from more liberal rules to stricter requirements, such as stating facts giving rise to a “plausible” right to relief.<sup>172</sup> According to the Supreme Court, “[t]o survive a motion to dismiss, a complaint must contain sufficient factual matter, accepted as true, to ‘state a claim to relief that is plausible on its face.’”<sup>173</sup> “Plausible” does not mean probable; it merely requires “more than a sheer possibility that a defendant has acted unlawfully.”<sup>174</sup> Rather than just a formulaic recitation of the elements of a cause of action or offerings of legal conclusions, the pleaded factual content itself must lead to a “reasonable inference that the defendant is liable for the misconduct alleged.”<sup>175</sup> Assessing the facts of a particular claim is a “context-

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<sup>168</sup> This identification process can be done via grab samples or, when hormone levels may be too variable or dilute, in-stream monitors such as a Polar Organic Chemical Integrative Sampler (POCIS) to produce more reliable calculations. *See, e.g.*, T. L. Jones-Lepp, D. A. Alvarez, J. D. Petty & J. N. Huckins, *Polar Organic Chemical Integrative Sampling and Liquid Chromatography-Electrospray/Ion-Trap Mass Spectrometry for Assessing Selected Prescription and Illicit Drugs in Treated Sewage Effluents*, 47 ARCHIVES ENV'T CONTAMINATION & TOXICOLOGY 427, 427 (2004); Ivo Černoch, Milan Fránek, Iva Diblíková, Klára Hilscherová, Tomáš Randák, Tomáš Ocelka & Luděk Bláha, *POCIS Sampling in Combination with ELISA: Screening of Sulfonamide Residues in Surface and Waste Waters*, 14 J. ENV'T MONITORING 250, 253 (2012).

<sup>169</sup> *See* U.S. ENV'T PROT. AGENCY, *supra* note 167, at 27. For example, one hormone (17- $\alpha$ -estradiol) “is predominantly produced by dairy cows and could be useful for source tracking.” *Id.* at 28.

<sup>170</sup> *See, e.g.*, Siamak Yazdankhah, Knut Rdui & Aksel Bernhoft, *Zinc and Copper in Animal Feed—Development of Resistance and Co-Resistance to Antimicrobial Agents in Bacteria of Animal Origin*, 25 MICROBIAL ECOLOGY IN HEALTH AND DISEASE (2014); EPA OFF. OF RSCH. & DEV., *supra* note 163.

<sup>171</sup> *See* EPA, OFF. OF RSCH. & DEV., EPA/600/R-04/042, RISK ASSESSMENT EVALUATION FOR CONCENTRATED ANIMAL FEEDING OPERATIONS 46 (2004) (estimating that animals excrete roughly 80–90% of the copper, zinc, and arsenic consumed).

<sup>172</sup> *See* FED. R. CIV. P. 12(b)(6). *Compare* Conley v. Gibson, 355 U.S. 41, 45–46 (1957) (“[A] complaint should not be dismissed for failure to state a claim unless it appears beyond doubt that the plaintiff can prove no set of facts in support of his claim which would entitle him to relief.”), *with* Bell Atlantic Corp. v. Twombly, 550 U.S. 544, 556 (2007) (“[P]lausible grounds . . . simply calls for enough fact to raise a reasonable expectation that discovery will reveal evidence . . .”), *and* Ashcroft v. Iqbal, 556 U.S. 662, 679 (2009) (“[O]nly a complaint that states a plausible claim for relief survives a motion to dismiss.”).

<sup>173</sup> *Iqbal*, 556 U.S. at 678 (quoting *Twombly*, 550 U.S. at 570).

<sup>174</sup> *Id.*

<sup>175</sup> *Id.*

specific task that requires the reviewing court to draw on its judicial experience and common sense.”<sup>176</sup>

In the context of environmental litigation and, particularly, of alleging CAFO contaminations of groundwater that feed into surface waters, the requirements for stating a sufficient claim mean that a claimant likely would not be able to merely allege, without more, that a particular CAFO is responsible for polluting a waterbody. Rather, a claimant would need a factual showing to support such an allegation, which would likely still need to withstand scientific scrutiny to satisfy judicial admissibility.<sup>177</sup> Thus, for potential CAFO claims under the *Maui* doctrine, methodologies in manure-tracking are relevant and essential. The availability of these methodologies makes stating a legally cognizable claim far from an insurmountable burden post-*Maui*.

A prospective claimant may obtain water samples (either surface water monitoring samples or groundwater monitoring samples) indicating contamination and rely on scientific methods to demonstrate that her claim—that the contamination originated from a particular CAFO—is more than mere legal theory. To determine the admissibility of scientific evidence,<sup>178</sup> federal courts apply the *Daubert* factors, established in *Daubert v. Merrell Dow Pharmaceuticals*.<sup>179</sup> The four factors set forth in *Daubert* for the admission of a theory or technique are: (1) “whether it can be (and has been) tested,” (2) “whether it has been subjected to peer review and publication,” (3) “its known or potential rate of error, and the existence and maintenance of standards controlling the technique’s operation,” and (4) “general acceptance in the field to which it belongs.”<sup>180</sup> A court’s reception to the scientific basis behind the facts driving an initial claim would ensure its survival against a Rule 12(b)(6) motion.<sup>181</sup> Under considerations of these factors, source tracking methods should survive judicial scrutiny and provide the necessary support to meet the requirements for sufficiently stating a claim.<sup>182</sup> Rapid advances in science have

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<sup>176</sup> *Id.* at 679.

<sup>177</sup> *See, e.g.,* *Mulquin v. Nektar Therapeutics*, 510 F. Supp. 3d 854, 873 (N.D. Cal. 2020) (granting Defendants’ motion to dismiss on the ground that Plaintiffs failed to establish causation as to loss).

<sup>178</sup> Although this Part discusses the framework for sufficiently stating a claim, we look to the Federal Rules of Evidence insofar as it is useful in the analysis of whether a court would accept a claimant’s factual basis for her legal claims at the outset of litigation.

<sup>179</sup> *Daubert v. Merrell Dow Pharms.*, 509 U.S. 579, 593–94 (1993).

<sup>180</sup> *See id.*

<sup>181</sup> FED. R. CIV. P. 12(b)(6).

<sup>182</sup> For a discussion and analysis of various source tracking methods and why they can likely pass the *Daubert* test, see Heinzen & Russ, *supra* note 152 at 496–99.

meant that cases involving water contamination “are becoming increasingly viable as the law catches up with the state of the science.”<sup>183</sup>

### III. A FRAMEWORK FOR BRINGING REAL-WORLD CAFOS IN ENVIRONMENTAL JUSTICE COMMUNITIES WITHIN THE SCOPE OF *MAUI*

Advances in science and the reliability of methods for identifying both the hydrological connection and the pollutant source illustrate that claims against CAFOs for groundwater pollution reaching jurisdictional surface waters are ripe for consideration in light of *Maui*. This Part lays out both the framework for subjecting CAFOs to the “functional equivalent” doctrine and the directives to emphasize in reaching that result.

First, section A of this Part briefly summarizes the environmental justice concerns<sup>184</sup> when it comes to CAFOs, highlighting examples of real geographic areas where minority and indigent groups disproportionately bear the negative externalities of this industry. Section B examines how the cooperative federalism structure of the Clean Water Act has failed these at-risk communities until now. Section C then argues that CAFOs in these communities provide a factual template that informs which CAFOs should fall under the “functional equivalent” doctrine and thus be subject to NPDES permitting under the CWA. This argument relies on (1) the interpretation of the scope of the CWA’s power as derived from the Commerce Clause, (2) the CWA’s broad goals of protecting the Nation’s waters, (3) the spirit of the *Maui* decision, and (4) directives that this Comment argues should guide assessments of CAFOs under *Maui*. Later, Part IV stresses that even if federal judges do not adopt the analysis offered in this Part, individual states still have free rein through the public trust doctrine to regulate groundwater discharges under the framework offered in this Part.

#### A. *At-Risk Communities as the Primary Cost-Bearers of the Negative Externalities*

*No one anywhere should have to live like this . . . . [CAFOs] are located here because we are the path of least resistance, because we do not have money, and we do not have a voice in the halls of power. They assumed we would not fight back.*

—Elsie Herring<sup>185</sup>

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<sup>183</sup> *Id.* at 499.

<sup>184</sup> See *infra* Part III.A (defining environmental justice).

<sup>185</sup> *Building a 100 Percent Clean Economy: The Challenges of Facing Frontline Communities: Hearing Before the Subcomm. on Env’t & Climate Change of the H. Comm. On Energy & Commerce*, 116th Cong. (2019)

The EPA defines environmental justice as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.”<sup>186</sup> Issues of environmental justice under President Biden’s administration have come squarely into focus and the administration has voiced a strong commitment to advancing environmental justice goals and policies.<sup>187</sup> Perhaps the most widely-documented case of environmental justice concerns takes place in the state of North Carolina, where many low-income and minority communities tend to lack the political power and influence of their white, affluent counterparts, and are thus more likely to be the sites burdened by undesirable CAFOs and their deleterious effects.<sup>188</sup> CAFOs in North Carolina are predominantly located in the eastern region of the state near the coast,<sup>189</sup> and the state is home to the top two hog-producing counties in the entire United States.<sup>190</sup> Duplin County, for instance, is known as the “hog capital of the world”<sup>191</sup> because it is home to more

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(testimony of Elsie Herring, Community Activist, North Carolina Environmental Justice Network).

<sup>186</sup> *Environmental Justice*, U.S. ENV’T PROT. AGENCY, <https://www.epa.gov/environmentaljustice> (Feb. 1, 2021). The official EPA website notes that environmental justice will be achieved when everyone enjoys “[t]he same degree of protection from environmental and health hazards” and “[e]qual access to the decision-making process to have a healthy environment in which to live, learn, and work.” *Id.* See generally Renee Skelton & Vernice Miller, *The Environmental Justice Movement*, NRDC (Mar. 17, 2016), <https://www.nrdc.org/stories/environmental-justice-movement> (discussing the environmental justice movement and its progression).

<sup>187</sup> See Press Release, The White House, FACT SHEET: President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government (Jan. 27, 2021) (on file at <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/>); Diamond Naga Siu, *New EPA Picks Show Commitment to Environmental Justice*, LAW360 (Feb. 4, 2021), <https://www.law360.com/articles/1351483/new-epa-picks-show-commitment-to-environmental-justice>. See generally Juliet Eilperin, Brady Dennis & Darryl Fears, *Biden to Place Environmental Justice at Center of Sweeping Climate Plan*, WASH. POST (Jan. 27, 2021, 12:51 PM), <https://www.washingtonpost.com/climate-environment/2021/01/26/biden-environmental-justice-climate/> (discussing how the Biden Administration has made a focused effort to address environmental justice).

<sup>188</sup> Nicole, *supra* note 14; STEVE WING & JILL JOHNSTON, INDUSTRIAL HOG OPERATIONS IN NORTH CAROLINA DISPROPORTIONATELY IMPACT AFRICAN-AMERICANS, HISPANICS AND AMERICAN INDIANS 1, 5 (2015) (“The percentages of Blacks, Hispanics and American Indians living within 3 miles of an industrial hog operation are 1.54, 1.39 and 2.18 times higher, respectively, than the proportion of non-Hispanic Whites.”). See generally Steve Wing, Gary Grant, Merle Green & Chris Stewart, *Community Based Collaboration for Environmental Justice: South-East Halifax Environmental Reawakening*, 8 ENV’T & URBANIZATION 129, 131–32 (1996) (describing environmental racism near hog production facilities).

<sup>189</sup> See Update: *Exposing Fields of Filth: Factory Farms Disproportionately Threaten Black, Latino, and Native American North Carolinians*, WATERKEEPER ALL. (July 30, 2020), <https://waterkeeper.org/news/update-exposing-fields-of-filth/> (providing a diagram of where CAFOs in North Carolina are predominantly located).

<sup>190</sup> Jennifer Shike, *America’s Top 20 Pig Counties*, PORK BUS. (July 7, 2019), <https://www.porkbusiness.com/news/hog-production/americas-top-20-pig-counties>.

<sup>191</sup> Julie Gueraseva, *‘What the Health’ Exposes How Corporate Greed Harms Public Health*, LAIKA (June

than two million confined pigs.<sup>192</sup> In the state of North Carolina, Blacks, Hispanics, and American Indians are, respectively, 1.40, 1.26, and 2.39 times more likely to suffer the consequences of living within three miles of a swine CAFO than non-Hispanic Whites.<sup>193</sup> Swine CAFOs in North Carolina are located closer to schools enrolling higher percentages of non-white and economically disadvantaged students.<sup>194</sup> The waste from the farms is stored in lagoons, which are vast, open-air cesspools filled with untreated manure, urine, and afterbirth.<sup>195</sup> A lagoon can contain as much as twenty to forty-five million gallons of wastewater, as animals in CAFOs generate hundreds of billions of gallons of wet animal waste each year.<sup>196</sup> Research has revealed more than 4,100 lagoons extending over 6,800 acres in North Carolina, “often located in low-lying spots near bodies of water.”<sup>197</sup>

In the context of water pollution,<sup>198</sup> these CAFO operations can contaminate both surface waters and groundwaters,<sup>199</sup> either of which can contaminate the other. The operations can<sup>200</sup> also enter sources of drinking water, including private drinking wells in rural communities.<sup>201</sup> This contamination has brought about a litany of negative consequences to these communities; in North Carolina, CAFOs threaten lakes, rivers, and streams even during normal weather conditions.<sup>202</sup> In atypical conditions such as major flooding events, lagoon breaches are more likely and such events, in turn, place millions of gallons of

1, 2017), <http://laikamagazine.com/what-the-health-film-exposes-truth/>.

<sup>192</sup> *Exposing Fields of Filth: After Hurricane, First Detailed Look at Flooding Feces-Laden N.C. Factory Farms*, ENV’T WORKING GRP. (Nov. 4, 2016), <http://www.ewg.org/research/exposing-fields-filth>.

<sup>193</sup> WING & JOHNSTON, *supra* note 188, at 6.

<sup>194</sup> Maria C. Mirabelli, Steve Wing, Stephen W. Marshall & Timothy C. Wilcosky, *Race, Poverty, and Potential Exposure of Middle-School Students to Air Emissions from Confined Swine Feeding Operations*, 114 ENV’T HEALTH PERSPS. 591, 595 (2006).

<sup>195</sup> ROBBIN MARKS, NAT. RES. DEF. COUNCIL, CESSPOOLS OF SHAME: HOW FACTORY FARM LAGOONS AND SPRAYFIELDS THREATEN ENVIRONMENTAL AND PUBLIC HEALTH 39 (2001), <https://www.nrdc.org/sites/default/files/cesspools.pdf>.

<sup>196</sup> *Id.* at 3. The waste from Robeson, Duplin, and Sampson County alone produces 4.4 billion gallons—enough waste to fill 6,715 Olympic-sized swimming pools each year. *Update: Exposing Fields of Filth, supra* note 189.

<sup>197</sup> *Exposing Fields of Filth in North Carolina: Landmark Report Maps Feces-Laden Hog and Chicken Operations in North Carolina*, ENV’T WORKING GRP. (June 21, 2016), <http://www.ewg.org/research/exposing-fields-filth-north-carolina>.

<sup>198</sup> This Comment recognizes the effects that CAFOs have on air pollution, including the production of emissions that fuel climate change and the diminishing effects on the ambient air quality. However, it focuses on water pollution and associated deleterious effects, and largely omits a discussion on air pollution.

<sup>199</sup> *See* WINTER ET AL., *supra* note 132, at 1132.

<sup>200</sup> *See supra* notes 132–34.

<sup>201</sup> *See, e.g.*, Wing et al., *supra* note 188, at 132, 137.

<sup>202</sup> Ball-Blakely, *supra* note 3, at 5.

hog manure into the water.<sup>203</sup> Lagoons and sprayfields also regularly compromise groundwater, whether it be a leak or breach in the infrastructure.<sup>204</sup> In North Carolina, “[a]s the lagoons’ clay liners age[,] . . . they can leach into the groundwater” and “the water can travel beneath the ground into surface water.”<sup>205</sup> These contaminants—whether nitrates, pathogens, metals, chemicals, or hormones—can impose significant deleterious health risks on the human population,<sup>206</sup> particularly those with weakened immune systems who are at special risk.<sup>207</sup> The coastal regions of North Carolina have a high dependence on well water for drinking,<sup>208</sup> but many residents’ wells have been rendered unusable.<sup>209</sup>

The disparate effects of CAFO pollution on indigent and minority populations go beyond merely North Carolina, as other regions in the “Black Belt” face similar practices.<sup>210</sup> For instance, a study in Mississippi demonstrated a high correlation between industrial hog operations and communities with African Americans and persons in poverty.<sup>211</sup> The study determined that “the majority of the Mississippi’s industrial hog operations are located in areas with high percentages of African Americans and persons in poverty,”<sup>212</sup> which

<sup>203</sup> *See id.*

<sup>204</sup> *See id.*

<sup>205</sup> Lisa Sorg, *What’s in the Water?*, N.C. POL’Y WATCH (Dec. 17, 2018), <http://www.ncpolicywatch.com/2018/12/17/high-levels-of-bacteria-found-in-duplin-county-watershed/>.

<sup>206</sup> *See* Hribar, *supra* note 8, at 10.

<sup>207</sup> *Id.* at 9. Hribar explains that “[t]hose at higher risk include infants or young children, pregnant women, the elderly, and those who are immunosuppressed, HIV positive, or have had chemotherapy. This risk group now roughly compromises 20% of the U.S. population.” *Id.*

<sup>208</sup> *See* Wing, *supra* note 188, at 137.

<sup>209</sup> *See* SoutheastEJ, *NCEJN and Allies Respond to Latest Attack by Hog Industry*, N.C. ENV’T JUST. NETWORK (Jan. 6, 2017), <http://www.ncejn.org/2017/01/ncejn-and-allies-respond-to-latest-attack-by-hog-industry/>.

<sup>210</sup> The Black Belt describes a crescent-shaped band that runs throughout the South where slaves historically worked on plantations. *See, e.g.,* Jay Reeves, *In Poor Black Belt Region, Both Fears and Prayers over Trump*, AP NEWS (Feb. 25, 2017), <https://apnews.com/article/f74bbdb4812b440a90bc52a579c60172> (displaying a graphic of areas considered to be part of the Black Belt).

<sup>211</sup> Sacoby M. Wilson, Frank Howell, Steve Wing & Mark Sobsey, *Environmental Injustice and the Mississippi Hog Industry*, 110 ENV’T HEALTH PERSPS. 195, 200 (2002), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241163/pdf/chp110s-000195.pdf>. In this study, block groups designated 0–25% poverty and 0–29% African American were the referent group, compared against this reference group. Adjusted for population density, there were approximately three times as many CAFOs in high-poverty, low African American block groups, and again approximately three times as many CAFOs in high African American, low-poverty groups (with only 1.79 times as many CAFOs in block groups both high in poverty and African American, perhaps because those areas may lack even the most basic political and economic infrastructure to attract industries—even CAFOs). *Id.* at 199.

<sup>212</sup> *Id.*

“supports the idea that industrial pollution sources are disproportionately located in proximity to non-White and low-income communities.”<sup>213</sup>

Beyond the Black Belt, environmental justice concerns pertaining to CAFOs have not been extensively recognized and documented; however, even where studies have shown inconclusive results, those studies have revealed other disparate effects of CAFOs. A study published in 2016 sought to understand the relationship between Iowa CAFOs and traditional environmental justice variables such as low-income and minority populations.<sup>214</sup> Even here, where Iowa CAFO locations did not implicate those traditional environmental justice groups, higher education was shown to provide a buffer against proximity to and the effects of swine operations.<sup>215</sup> It also bears mentioning that in the agricultural industry, which includes the operation of CAFOs and AFOs,<sup>216</sup> “[f]arm laborers have lower levels of educational attainment, are more likely to be of Hispanic or Mexican origin, and are less likely to be citizens than are workers in other agricultural occupations or than the U.S. wage and salary workforce as a whole.”<sup>217</sup> As we can see, there is a greater need for equity in law and policy for our vulnerable groups.

### *B. CAFO Pollution and the Shortcomings of States in the Cooperative Relationship*

*You have people in power that are owned by the corporations—they’ve taken so much money from them, even if they wanted to do better, the industries would go after them.*

—Naeema Muhammad<sup>218</sup>

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<sup>213</sup> *Id.*

<sup>214</sup> Carrel et al., *supra* note 16, at 849.

<sup>215</sup> *See id.* at 857 (finding that “Iowa CBGs within the highest two standard deviations of the distribution of swine AU density are also CBGs where low percentages of people living in poverty or who are not white reside but where the population has a high percentage of residents with less than a college education”).

<sup>216</sup> *See* Hribar, *supra* note 8, at 1 (“A CAFO is a specific type of large-scale industrial agricultural facility that raises animals . . .”).

<sup>217</sup> *Farm Labor*, U.S. DEP’T AGRIC., <https://www.ers.usda.gov/topics/farm-economy/farm-labor/#demographic> (last visited Dec. 17, 2021). Although we do not have precise statistics on the percentage farm workers that are Hispanic or another minority race in the specific context of CAFOs, data already associates increased percentages of Hispanic and African American populations with increased odds of a nearby CAFO. *See, e.g.*, Jen Horton, *The Siting of Hog CAFOs in Eastern North Carolina: A Case of Environmental Justice?* (Apr. 2012) (Ph.D. thesis, University of Michigan) (available at [https://deepblue.lib.umich.edu/bitstream/handle/2027.42/90920/Jen\\_Horton\\_final2%5b1%5d.pdf?sequence=1&isAllowed=y](https://deepblue.lib.umich.edu/bitstream/handle/2027.42/90920/Jen_Horton_final2%5b1%5d.pdf?sequence=1&isAllowed=y)).

<sup>218</sup> Christina Cooke, *Fighting Voter Suppression, Environmental Racism, and Corporate Agriculture in Hog Country*, CIVIL EATS (Oct. 22, 2020), <https://civileats.com/2020/10/22/fighting-voter-suppression-environmental-racism-and-corporate-agriculture-in-hog-country/> (discussing why the state legislature does not put the interests of the people first when it comes to holding agricultural operations responsible).

States have failed to uphold their part of the cooperative relationship of federalism by failing to adequately regulate both nonpoint sources and CAFOs as point sources. The stated goal of the federal Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters,”<sup>219</sup> but that same section of the Act emphasizes the “primary responsibilities and rights of *States* to prevent, reduce, and eliminate pollution.”<sup>220</sup> This dual assignment of state and federal directives highlights the operation of the CWA within a framework of cooperative federalism.<sup>221</sup> Federalism expresses the principle that “the federal government is a government of enumerated powers,” and “all authority not expressly granted to it is reserved to the states or to the people.”<sup>222</sup> Cooperative federalism is a corollary proposition that state and federal governments can work in cooperation, each acting in accord with their unique competencies and powers, to achieve a better regulatory result.<sup>223</sup>

Cooperative federalism is at work in how the CWA regulates pollution that reaches navigable waters,<sup>224</sup> as well as in how the Act allows for states to take on the federal government’s permitting authority.<sup>225</sup> This statutory division of labor has placed non-point source pollution beyond the ambit of federal regulation, as “nationwide uniformity in controlling non-point source pollution [is] virtually impossible” and “often depends on land use controls, which are traditionally state or local in nature.”<sup>226</sup> Groundwater, neither a point source nor a navigable water for CWA purposes, is an area left to state regulations; the text and history of the CWA suggest its deliberate exclusion from federal regulation.<sup>227</sup> Congress “elect[ed] to leave the subject to state law,”<sup>228</sup> and its

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<sup>219</sup> 33 U.S.C. § 1251(a).

<sup>220</sup> *Id.* § 1251(b) (emphasis added).

<sup>221</sup> For further reading on cooperative federalism and state participation in the context of the CWA, see Robin Kundis Craig, *Beyond SWANCC: The New Federalism and Clean Water Act Jurisdiction*, 33 ENV’T L. 113, 122–23 (2003).

<sup>222</sup> Damien Schiff, *Keeping the Clean Water Act Cooperatively Federal—Or, Why the Clean Water Act Does Not Directly Regulate Groundwater Pollution*, 42 WM & MARY ENV’T L. & POL’Y REV. 447, 456 (2018).

<sup>223</sup> Robert L. Fischman, *Cooperative Federalism and Natural Resources Law*, 14 N.Y.U. ENV’T L.J. 179, 184 (2005) (“Since the New Deal, cooperative federalism typically appears as congressional or administrative efforts to induce . . . states to participate in a coordinated federal program.”).

<sup>224</sup> See 33 U.S.C. §§ 1311(a), 1362(12)(A).

<sup>225</sup> See *id.* §§ 1342(b), 1344(g), (h).

<sup>226</sup> *Or. Nat. Desert Ass’n v. U.S. Forest Serv.*, 550 F.3d 778, 785 (9th Cir. 2008) (quoting Marc R. Poirier, *Non-Point Source Pollution*, in ENV’T L. PRAC. GUIDE § 18.13 (2008)).

<sup>227</sup> See Schiff, *supra* note 222, at 460–64 (explaining why, based on text and history, groundwater is not included in the CWA’s definition of “navigable waters”).

<sup>228</sup> *Id.*

exclusion of groundwater from the definition of “navigable waters” is consistent with the CWA’s cooperative federalism framework.<sup>229</sup>

When it comes to state regulation, a potential weakness in the proposition that individual states are better informed and equipped to manage their own non-point source and groundwater pollution is that the individual states are not always inclined to do so. For starters, “very few states enact requirements that are significantly more stringent than the federal requirements.”<sup>230</sup> For instance, the State of North Carolina’s Department of Environmental Quality (DEQ) requires hog facilities of a certain size to have either a state permit or a NPDES permit.<sup>231</sup> While this requirement may seem reassuring, the state permits are fundamentally flawed as they “are predicated on the legal fiction that regulated facilities do not pollute public waters.”<sup>232</sup> The common law has already evolved into a catch-22 when it comes to CAFO enforcement, as CAFOs need to show discharge to surface waters to be regulated.<sup>233</sup> Similarly, the North Carolina permit reflects this catch-22 and does not require surface water nor groundwater monitoring, except when there is an observed permit violation.<sup>234</sup>

Some may wonder why states have regulated CAFOs so poorly under a cooperative framework and failed to hold up their part of the cooperative partnership, despite the awareness and documentation of these conditions.<sup>235</sup> The simple answer is that the pork industry and similar meat industries are economic fixtures in states such as North Carolina.<sup>236</sup> The industry benefits from shifting its negative externalities to surrounding communities, and states like

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<sup>229</sup> See Jason R. Jones, *The Clean Water Act: Groundwater Regulation and the National Pollutant Discharge Elimination System*, 8 DICK. J. ENV’T L. & POL’Y 93, 111 (1999).

<sup>230</sup> Emily A. Kolbe, “*Won’t You Be My Neighbor*”: *Living with Concentrated Animal Feeding Operations*, 99 IOWA L. REV. 415, 421 (2013).

<sup>231</sup> See *Animal Feeding Operations*, N.C. DEP’T ENV’T QUALITY, <https://deq.nc.gov/about/divisions/water-resources/water-quality-permitting/animal-feeding-operations> (last visited Dec. 17, 2021).

<sup>232</sup> D. Lee Miller & Ryke Longest, *Reconciling Environmental Justice with Climate Change Mitigation: A Case Study of NC Swine CAFOs*, 21 VT. J. ENV’T L. 523, 528 (2020).

<sup>233</sup> See *Waterkeeper All., Inc. v. EPA*, 399 F.3d 486, 505 (2d Cir. 2005).

<sup>234</sup> See DEP’T ENV’T QUALITY, N.C. ENV’T MGMT. COMM’N, SWINE WASTE MANAGEMENT SYSTEM GENERAL PERMIT (2019) [hereinafter GENERAL PERMIT] (listing permit requirements, which include no ground or surface water monitoring requirement). The draft general permits for these operations “continue to treat most hog and poultry farms as ‘non-discharge.’” Sorg, *supra* note 205.

<sup>235</sup> See Lindsay Walton & Kristen King Javien, *Regulating CAFOs for the Well-Being of Farm Animals, Consumers, and the Environment*, 50 ENV’T L. REP. 10485, 10487 (2020) (characterizing the industry as “radically and uniquely unregulated”).

<sup>236</sup> See, e.g., *North Carolina Pork Industry Continues to Be Economic Powerhouse*, NAT’L HOG FARMER (Dec. 19, 2019), [www.nationalhogfarmer.com/livestock/north-carolina-pork-industry-continues-be-economic-powerhouse](http://www.nationalhogfarmer.com/livestock/north-carolina-pork-industry-continues-be-economic-powerhouse).

North Carolina make “no secret of [their] allegiance to Big Ag.”<sup>237</sup> Farm lobbyists exert significant influence over politicians to guard and promote the interests of industrial agriculture, selling to the public the idea of protecting small family farms, which largely no longer exist thanks to Big Ag itself.<sup>238</sup> In North Carolina, complaints have fallen upon deaf ears<sup>239</sup> and community members who have attempted to mobilize against and investigate CAFOs have been subject to harassment tactics, including sustained tailgating, yelling, threats of gun and other physical violence, and harassers driving back and forth in front of their houses.<sup>240</sup> Indeed, not only have some states done nothing under this cooperative relationship to regulate CAFO pollution, but many have also utilized state laws—including “ag-gag”<sup>241</sup> and “right-to-farm”<sup>242</sup> laws—to make it harder for the aggrieved communities to recover relief for their harms.<sup>243</sup>

### C. Successfully Applying the Maui Test to Real-World CAFOs

*The Court’s balanced approach in resolving County of Maui v. Hawaii Wildlife Fund provides hope that lower courts will decide future Clean Water Act cases consistent with Congress’s words and purpose—and will not be swayed by overblown rhetoric from polluters wishing to dodge responsibility for keeping the nation’s waters healthy.*

—Jon Devine & David Henkin<sup>244</sup>

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<sup>237</sup> Ball-Blakely, *supra* note 3, at 10.

<sup>238</sup> See Sisneros-Lobato, *supra* note 2; see also Ball-Blakely, *supra* note 3, at 9 (“[B]ecause Big Ag has convinced the country that industrial farms are small family farms, it is all too easy to characterize governmental regulations as the big boot of the Federal Government standing on the little guy’s throat.”).

<sup>239</sup> Gray Jernigan, *What to Do When State Regulation Stinks*, WATERKEEPER MAG., 2015, at 33, 34, <https://waterkeeper.org/wp-content/uploads/2019/11/WKMagSummer15r14-small1.pdf>.

<sup>240</sup> See Lisa Sorg, *EPA to NC DEQ: “Grave Concerns” About Swine Industry’s Intimidation of Minority Residents*, N.C. POL’Y WATCH (Jan. 25, 2017), <http://www.ncpolicywatch.com/2017/01/25/epa-nc-deq-grave-concerns-swine-industrys-intimidation-minority-residents/>. In one egregious incident, a CAFO operator entered the home of an elderly woman and “sh[ook] the chair she sat in while threatening her and her family with physical violence if they continued to complain about the odors and spray.” Sue Sturgis, *A Step Toward Environmental Justice in North Carolina’s Hog Country*, FACING S. (Feb. 3, 2017), <https://www.facingsouth.org/2017/02/step-toward-environmental-justice-north-carolinas-hog-country>.

<sup>241</sup> See *supra* note 17 and accompanying text. In June 2020, a coalition of organizations challenged North Carolina’s ag-gag law on First Amendment free speech rights and succeeded. See *Victory: North Carolina Ag-Gag Law Struck Down as Unconstitutional*, ASPCA (June 15, 2020), <https://www.aspc.org/news/victory-north-carolina-ag-gag-law-struck-down-unconstitutional>.

<sup>242</sup> See *supra* note 17 and accompanying text.

<sup>243</sup> For an example of a right-to-farm statute that protects swine operations, see N.C. GEN. STAT. § 106-701 (2018).

<sup>244</sup> Jon Devine & David Henkin, *Closing a Concocted Clean Water Act Loophole*, REGUL. REV. (July 20, 2020), <https://www.theregreview.org/2020/07/20/devine-henkin-closing-concocted-clean-water-act-loophole/>.

This section argues that CAFOs that contaminate groundwater, when analyzed under *Maui*'s "functional equivalence" doctrine, should be subject to the CWA and its NPDES permitting scheme. It begins by analyzing a threshold question of how far the CWA *can* extend to point source discharges into groundwater, given that groundwater is not itself a "navigable water." It then highlights actual-world regions and CAFOs (here, illustrating the application of *Maui* through CAFOs in eastern North Carolina), tackling the question of whether it *should* extend to those CAFOs in those fact-specific circumstances, ultimately answering in the affirmative.

### *1. A Broad Maui Interpretation Would Not Exceed the Clean Water Act Regulatory Regime*

A broad application of *Maui* is unlikely to encounter serious pushback. The *Maui* decision unequivocally confirms that the CWA can in some instances apply to groundwater that reaches jurisdictional surface waters; however, the aforementioned caselaw has primarily addressed the question of how far the CWA chooses to regulate groundwater *in fact*, not the question of how far the CWA *could* go in regulating groundwater. This Comment now emphasizes that wherever this ceiling exists, even a broad, expansive interpretation of "functional equivalent" is well within the constitutional limitations of how much courts could stretch *Maui*. Because *Maui* provided several non-exhaustive factors in determining whether "functional equivalence" applies in a particular case, this subpart clarifies that "functional equivalent" determinations, however broadly interpreted, do not run afoul of constitutional limitations.<sup>245</sup>

The federal government's authority over this vast regulatory regime derives from the Commerce Clause, which "[t]he CWA depends entirely on . . . for support."<sup>246</sup> The Commerce Clause gives Congress the power to regulate the channels, instrumentalities, and activities that have a substantial effect on interstate commerce.<sup>247</sup> The channels of interstate commerce refer to the modes of "interstate and foreign commerce."<sup>248</sup> Insofar as waterbodies are capable of

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<sup>245</sup> By "constitutional limitations," this Comment means limitations upon the federal government to legislate in an area beyond its enumerated powers.

<sup>246</sup> Calvert G. Chipchase, *The Clean Water Act: What's Commerce Got to Do with It?*, 33 ENV'T L. REP. NEWS & ANALYSIS 10775, 10779 (2003); see also Stanley A. Millan, *The Odd Couple: The High Court's Expansion of Environmental Standing in Waters but Contraction of Regulatory Jurisdiction Over Them*, 47 LOY. L. REV. 729, 745 (2001) ("The federal government's regulatory jurisdiction over navigable waters is based on [the Commerce Clause].").

<sup>247</sup> See, e.g., *United States v. Lopez*, 514 U.S. 549, 558–59 (1995).

<sup>248</sup> *Id.* at 560.

facilitating the movement of persons and goods across state or national borders, those waterbodies constitute a “channel” of interstate commerce.<sup>249</sup>

CWA regulation of groundwater in the *Maui* context is permissible under Commerce Clause powers because *Maui* and the prominent challenges immediately antecedent to *Maui* are only concerned with groundwater that reaches jurisdictional surface water.<sup>250</sup> The precondition that the groundwater reaches surface water establishes the necessary jurisdictional hook for federal regulations to attach.<sup>251</sup> When the EPA in its 2019 Interpretive Statement reversed from its longstanding position that the CWA should be interpreted to cover groundwater in connection to jurisdictional surface waters, the EPA understood that there is such a power to regulate this groundwater, stating “Congress intentionally *chose* to exclude all releases of pollutants to groundwater from the NPDES program, even where pollutants are conveyed to jurisdictional surface waters via groundwater.”<sup>252</sup> This language points to a position of elective forbearance when it comes to regulating groundwater that reaches surface water, indicating the power of the CWA to regulate such waters if it were so inclined to do so.<sup>253</sup> That is, even if we assumed that Congress categorically elected to not regulate groundwater (a proposition that the Supreme Court ultimately held in *Maui* to be erroneous), that does not mean that Congress could not have done so. In fact, courts did not entertain arguments—in *Maui* or in those challenges immediately antecedent to *Maui*<sup>254</sup>—that such an application of the CWA exceeds the authority granted under the Commerce Clause.<sup>255</sup>

How much power does the CWA have under the Commerce Clause to regulate groundwater in connection with jurisdictional surface waters? Whatever the theoretical limits of the CWA’s power to regulate groundwater in

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<sup>249</sup> See, e.g., *Nat’l Ass’n of Home Builders v. Babbitt*, 130 F.3d 1041, 1058 (D.C. Cir. 1997) (Henderson, J., concurring) (“[Where] the object of the regulation was necessarily connected to movement of persons or things interstate . . . [the regulation] could therefore be characterized as regulation of the channels of commerce.”).

<sup>250</sup> *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1474 (2020).

<sup>251</sup> Tara M. Stuckey, *Jurisdictional Hooks in the Wake of Raich: On Properly Interpreting Federal Regulations of Interstate Commerce*, 81 NOTRE DAME L. REV. 2101, 2102 (2006). As Tara M. Stucky explains, “A jurisdictional hook is a statutory clause requiring that the regulated activity have a connection with interstate commerce.” *Id.*

<sup>252</sup> Interpretive Statement on Application of the Clean Water Act National Pollutant Discharge Elimination System Program to Releases of Pollutants from a Point Source to Groundwater, 84 Fed. Reg. 16,810, 16,811 (proposed Apr. 23, 2019) (to be codified at 40 C.F.R. 122) (emphasis added).

<sup>253</sup> See generally *id.* at 16,813, 16,815, 16,816 (positing at multiple points that Congress chose to leave groundwater to state regulation).

<sup>254</sup> See *supra* Part I (discussing the cases this Comment considers to be immediately antecedent to *Maui*).

<sup>255</sup> See, e.g., Brief for Petitioner, *Maui*, 140 S. Ct. 1462 (No. 18-260).

connection to jurisdictional surface waters might be under the Commerce Clause, it is not necessary to determine with utmost precision at this time; presently, it is enough that the *Maui* decision and its “functional equivalent” test are permissible under the CWA.<sup>256</sup> Still, this power to regulate under *Maui* is amorphous in that *Maui*’s list of non-exhaustive factors gives courts broad discretion to apply *Maui*. That discretion in determining whether “functional equivalent” exists, if applied liberally, is unlikely to run afoul of the CWA’s powers under the Commerce Clause, given that other more expansive tests, including the “fairly traceable”<sup>257</sup> and “direct hydrological connection”<sup>258</sup> tests, have not faced challenges related to exceeding the regulatory power of Congress.<sup>259</sup> As these more expansive standards are within the power of federal regulation, even a broad interpretation of the much narrower *Maui* test certainly suffices.

Courts have broad authority to make judicial determinations on whether fact-specific applications of the *Maui* test adequately make out a case for “functional equivalence.”<sup>260</sup> Because courts have discretion in this matter, and because that discretion, even liberally applied, would not violate the regulatory authority of the CWA under the Commerce Clause, “functional equivalence” can be defined and determined by the courts,<sup>261</sup> subject to practical limitations.<sup>262</sup>

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<sup>256</sup> *Maui*, 140 S. Ct. at 1468.

<sup>257</sup> See *Haw. Wildlife Fund v. County of Maui*, 886 F.3d 737, 749 (9th Cir. 2018) (utilizing a “fairly traceable” test).

<sup>258</sup> See *Upstate Forever v. Kinder Morgan Energy Partners, L.P.*, 887 F.3d 637, 651 (4th Cir. 2018) (utilizing a “direct hydrological connection” test).

<sup>259</sup> Those cases involved challenges on whether the Clean Water Act should be interpreted to encompass groundwater in connection to surface water, not whether the Clean Water Act can regulate that groundwater.

<sup>260</sup> This observation is an unassuming acknowledgement of the power of federal courts when it comes to resolution of legal questions. See *Marbury v. Madison*, 5 U.S. 137, 137 (1803) (“It is emphatically the duty of the Judicial Department to say what the law is.”).

<sup>261</sup> This idea that a determination may be whatever a governmental body declares to be the case is found, for instance, when discussing presidential impeachment. Gerald Ford famously declared that “an impeachable offense is whatever a majority of the House of Representatives considers it to be at a given moment in history.” U.S. SENATE, IMPEACHMENT: THE SENATE’S IMPEACHMENT ROLE, <https://www.senate.gov/about/powers-procedures/impeachment/senate-impeachment-role.htm> (last visited Dec. 17, 2021).

<sup>262</sup> Justice Breyer, writing the *Maui* opinion, opined that “[i]f the pipe ends 50 miles from navigable waters and the pipe emits pollutants that travel with groundwater, mix with much other material, and end up in navigable waters only many years later, the permitting requirements likely do not apply.” *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1476 (2020). Although not dispositive, Justice Breyer’s musings might hold value insofar as they provide a reference that may serve as a persuasive parameter for lower courts to consider.

## 2. Existing CAFOs in Eastern North Carolina and the Proposed Application of Maui

This subsection looks at CAFOs in the eastern coastal region of North Carolina, where hog farms are primarily situated in the state and where some of the most egregious environmental justice violations are sited. It will highlight how closely some CAFOs are sited to jurisdictional surface waters and the suitability of similarly situated CAFOs for a potential *Maui* application.<sup>263</sup>

### a. Region of Focus as a Case Study: Northeast Cape Fear River and Nearby CAFOs

Stocking Head Creek is a stream located in Duplin County that originates from beneath the ground just south of Kenansville in Duplin County and ends about fourteen miles away just northeast of Chinquapin, NC, where it converges with Muddy Creek and feeds into the Northeast Cape Fear River.<sup>264</sup> It is part of the Cape Fear River Basin watershed, where 94,000 swine and 1.3 million broiler chickens live in confinement.<sup>265</sup> The Northeast Cape Fear River is a tributary to the Cape Fear River and is navigable-in-fact.<sup>266</sup> It runs for about 130 miles through the southeastern coastal plains of North Carolina.<sup>267</sup> The Cape Fear River is a blackwater river<sup>268</sup> located in east central North Carolina that flows into the Atlantic Ocean near Cape Fear, from which it takes its name.<sup>269</sup> It additionally serves as a part of the route of the Intracoastal Waterway.<sup>270</sup> The

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<sup>263</sup> This Comment does not purport to find legal challenges in the particular, but rather the abstract. Insofar as it discusses particular CAFOs in the context of *Maui*, this Comment aims to show, broadly, that there are some CAFOs against which claimants can allege a compelling *Maui* challenge. Nothing in this Comment should be construed to theorize that challenges against any specific CAFO are likely to succeed, given the practical imperfections that would inhere in making such a determination in the abstract before making scientific findings in the particular—including lack of testing, details surrounding groundwater flow, and other facts and documentation unavailable to us at this juncture.

<sup>264</sup> Sorg, *supra* note 205.

<sup>265</sup> Kemp Burdette, *Waterways Already Are in Peril; Don't Make Them Worse*, STARNEWS ONLINE (Apr. 12, 2019), <https://www.starnewsonline.com/opinion/20190412/kemp-burdette-waterways-already-are-in-peril-dont-make-them-worse>.

<sup>266</sup> See, e.g., Caitie Forde-Smith, *Northeast Cape Fear River*, COASTAL REV. (Apr. 4, 2013), <https://www.coastalreview.org/2013/04/our-coast-northeast-cape-fear-river/> (describing a wilderness area guide who offers guided boat tours on the Northeast Cape Fear River).

<sup>267</sup> *Id.*

<sup>268</sup> A blackwater river is a river that typically is slow-moving, flowing through forests, swamps, or wetlands. See generally *Tannins and Blackwater Rivers*, OGEECHEE RIVERKEEPER (May 29, 2020), <https://www.ogeecheeriverkeeper.org/tannins-and-blackwater-rivers/> (describing blackwater rivers and their composition).

<sup>269</sup> *Cape Fear River*, BRITANNICA, <https://www.britannica.com/place/Cape-Fear-River> (last visited Dec. 17, 2021).

<sup>270</sup> See *North Carolina Intracoastal Waterway*, COASTAL GUIDE (last visited Dec. 17, 2021), <https://www.coastalguide.com/north-carolina-intracoastal-waterway.html>.

river is navigable-in-fact and employs a series of locks and dams to aid in its navigability.<sup>271</sup>

On April 21, 2020, the EPA published a Final Rule defining the scope of waters federally regulated under the CWA.<sup>272</sup> The 2020 WOTUS Rule interpreted “‘waters of the United States’ to encompass: The territorial seas and traditional navigable waters; *perennial and intermittent tributaries that contribute surface water flow to such waters*; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters.”<sup>273</sup> Stocking Head Creek, on its roughly fourteen-mile journey through Duplin County, passes through an agglomeration of industrialized animal farms on its way to the Northeast Cape Fear River.<sup>274</sup> Fortunately, Stocking Head Creek is a permanent stream that fits into the EPA’s new definition of “waters of the United States.”<sup>275</sup> Because it is a jurisdictional surface water, *Maui* applies where there is a “functional equivalent” of a direct discharge into Stocking Head Creek and such a discharge would be subject to the permitting requirements of the CWA.<sup>276</sup>

Most of the many CAFOs that are located within a mere two miles of Stocking Head Creek are covered under the N.C. Department of Environmental Quality’s Swine Waste Management System General Permit.<sup>277</sup> Upon first impression, this regulatory burden may seem stringent but upon closer inspection is fundamentally flawed because it fails to deliver its facial promises to protect North Carolina. As already mentioned, DEQ’s swine permits are flawed because they are classified as non-discharge facilities,<sup>278</sup> and thus no water monitoring is required unless regulators observe permit violations.<sup>279</sup> Therefore, animal feeding operations presumptively do not discharge into

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<sup>271</sup> See, e.g., Denise Patterson, *Navigating the Cape Fear: Locks Are Key*, COASTAL REV. (Sept. 25, 2015), <https://www.coastalreview.org/2015/09/navigating-the-cape-fear-locks-are-key/> (providing a brief history and illustrative examples of locks and dams on the Cape Fear River).

<sup>272</sup> 85 Fed. Reg. 22,250, 22,250 (Apr. 21, 2020) (to be codified at 40 C.F.R. Parts 110, 112, 116, 117, 120, 122, 230, 232, 300, 302, and 401) [hereinafter “2020 WOTUS Rule”].

<sup>273</sup> *Id.* at 22,251 (emphasis added).

<sup>274</sup> Stocking Head Creek, N.C., GOOGLE MAPS, <http://maps.google.com> (search “Stocking Head Creek, N.C.”).

<sup>275</sup> See *Stocking Head Creek Watershed Study*, N.C. DEP’T OF ENV’T QUALITY, <https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/shc-study> (last visited Dec. 17, 2021).

<sup>276</sup> See *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1474 (2020).

<sup>277</sup> GENERAL PERMIT, *supra* note 234, at 1.

<sup>278</sup> See *id.* (listing permit requirements).

<sup>279</sup> See Miller & Longest, *supra* note 232 (discussing how DEQ’s swine permits are flawed and how that regulatory scheme results in regulated facilities to pollute waters without accountability).

surface waters and are not required to take action (i.e., monitor the water) to rebut that presumption and consequently alter their regulatory paradigm. Appendix 1 illustrates just a few permitted animal facilities, all located within two miles of Stocking Head Creek.<sup>280</sup>

As many as half of all CAFO lagoons are leaking into groundwater.<sup>281</sup> In instances where the methods of establishing causation reveal surface water pollution that can be tied to groundwater pollution by a CAFO or a group of CAFOs, and where the sites are so close in geographic proximity to surface waters (as is demonstrably the case with Stocking Head Creek), the “functional equivalence” test can likely be applied. In an industry devoid of real regulation and for underprivileged communities devoid of adequate remedies,<sup>282</sup> there is a prime opportunity to apply *Maui* in a way that brings CAFOs squarely within *Maui*’s scope. When applied to CAFO pollution of surface waters via groundwater, an opportunity arises for *Maui* to be a promising tool that fights for protecting America’s waters as the CWA intended.<sup>283</sup> The Supreme Court’s decision in *Maui* is an opportunity to carry out CWA’s goals. Lower courts around the country, including in regions like coastal North Carolina, have the chance to follow through on those promises. The fact-specific test that *Maui* has provided, applied faithfully, does not provide a wholesale fix of American water pollution but is still a meaningful step in the right direction towards protection of precarious American waterways. To aid in doing so, courts need to make the right inquiries when applying the fact-specific, non-exhaustive *Maui* test.

### 3. *Proposal: An Interpretive Directive Guiding “Functional Equivalent” Determinations*

The Supreme Court in *Maui* opined on a number of potential factors in making a “functional equivalent” determination and noted that time and distance would be most important in most cases.<sup>284</sup> For CAFOs that pollute into groundwater, each CAFO boasts its own set of factual circumstances in terms of where it discharges into the water table, how that water in turn flows from groundwater into surface water, and how far away it is located from the surface

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<sup>280</sup> See app. 1.

<sup>281</sup> Joby Warrick & Pat Stith, *New Studies Show that Lagoons Are Leaking: Groundwater, Rivers Affected by Waste*, NEWS & OBSERVER (Feb. 19, 1995), <https://www.pulitzer.org/winners/news-observer-raleigh-nc>.

<sup>282</sup> See generally *supra* Part I.A (discussing limitations when it comes to enforcing CAFO pollution).

<sup>283</sup> See 33 U.S.C. § 1251(a) (declaring that the Act’s goal is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters”).

<sup>284</sup> *County of Maui v. Haw. Wildlife Fund*, 140 S. Ct. 1462, 1477 (2020) (“Time and distance will be the most important factor in most cases, but not necessarily every case.”).

water, among other circumstances. While courts can wade through potential claims anew on a case-by-case basis, courts should develop directives that make at least some cases relatively straightforward.

Establishing baselines is a way that “keeps easy cases easy.”<sup>285</sup> Although Justice Scalia penned this memorable quote in a case discussion of Fourth Amendment rights,<sup>286</sup> its underlying principle of promoting judicial clarity and consistency via legal baselines has applicable value here. In making determinations on “functional equivalence” for CAFO groundwater pollution, courts should establish baseline distances and travel times within which discharges ought to be *presumptively* the “functional equivalent” of a direct discharge.<sup>287</sup> Defendants can overcome this presumption of satisfying “functional equivalence” by a clear demonstration that other factors overwhelmingly weigh against applicability of the *Maui* test. But having a baseline presumption in place would make many cases more straightforward, keeping the easy cases easy while discouraging a flood of litigation.

The interpretive directive of a presumptive finding of “functional equivalence” could prove to be a very meaningful tool, but it needs to make the right inquiries. We presently focus on time and distance, using the two factors that the Supreme Court noted would be most important in a majority of cases.<sup>288</sup> When it comes to time and distance, the Court gave an extreme example of when it would be “surprising, even bizarre” to regulate: “the 100-year migration of pollutants through 250 miles of groundwater to a river.”<sup>289</sup> It later gave an example of what would and would not be appropriate to regulate, offering the following:

Where a pipe ends a few feet from navigable waters and the pipe emits pollutants that travel those few feet through groundwater (or over the beach), the permitting requirement clearly applies. If the pipe ends 50 miles from navigable waters and the pipe emits pollutants that travel with groundwater, mix with much other material, and end up in navigable waters only many years later, the permitting requirements likely do not apply.<sup>290</sup>

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<sup>285</sup> See *Florida v. Jardines*, 569 U.S. 1, 9 (2013) (“One virtue of the Fourth Amendment’s property-rights baseline is that it keeps easy cases easy.”).

<sup>286</sup> See *generally id.* (analyzing a Fourth Amendment case involving a dog sniff on one’s property).

<sup>287</sup> This Comment will also refer to this interpretive directive as the “functional equivalent presumption.”

<sup>288</sup> *Maui*, 140 S. Ct. at 1476.

<sup>289</sup> *Id.* at 1471.

<sup>290</sup> *Id.* at 1476.

On the conservative spectrum of guidance as to what does not amount to a “functional equivalent” determination, fifty miles might be too far regarding assessments of distance; temporally, “many years” might be too long. And conversely, as to what *would* amount to a “functional equivalent” determination, the test “clearly applies” if the pollutants traveled only a “few feet through groundwater.”<sup>291</sup> Where does that leave us? Potential claimants and defendants both lack real clarity and guidance amidst the chasm of gray.

This Comment proposes that courts confronted with a “functional equivalence” inquiry adopt an interpretative directive under which discharges into groundwater are presumptively the “functional equivalent” of a direct discharge if discharges into groundwater (1) are located within one mile of a jurisdictional surface water; (2) travel downgradient in a path that directly feeds into the jurisdictional surface water; and (3) travel with a migration time measurable in days, weeks, or months, as opposed to years. Such a presumption would be surmountable on a case-by-case basis. The Court in *Maui* left “functional equivalent” determinations to a case-by-case basis, and there are some cases that this Comment argues clearly fit within a baseline of that test. This functional equivalent presumption squarely emphasizes the two factors—time and distance—deemed by the *Maui* court to be the most important factors, most of the time, in “functional equivalence determinations.”<sup>292</sup> The other five enumerated considerations (which have been explicitly considered to have less weight in most circumstances),<sup>293</sup> along with any unlisted considerations in the Supreme Court’s admittedly non-exhaustive list, still have a potentially enormous situational utility in rebutting a presumption (or, conversely, in further validating that presumption) that “functional equivalence” has been established.

It is also worth clarifying that this proposal is not a new test, but rather an easy tool to use to help courts faithfully interpret *Maui* and the current “functional equivalent” test; this Comment does not advocate for the establishment of presumptive baselines *instead of* a case-by-case analysis, but rather is offering a framework under which these baselines exist *within* the case-by-case analysis already set forth by the Supreme Court.<sup>294</sup> Legal presumptions

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<sup>291</sup> *Id.*

<sup>292</sup> *See id.* at 1476–77.

<sup>293</sup> The other five listed considerations are: (1) “the nature of the material through which the pollutant travels,” (2) “the extent to which the pollutant is diluted or chemically changed as it travels,” (3) “the amount of pollutant entering the navigable waters relative to the amount of the pollutant that leaves the point source,” (4) “the manner by or area in which the pollutant enters the navigable waters,” and (5) “the degree to which the pollution (at that point) has maintained its specific identity.” *Id.* at 1476.

<sup>294</sup> *See id.*

are commonplace in American jurisprudence and littered in virtually every area of law.<sup>295</sup>

When we look to the *Maui* decision and the Court’s hypothetical examples of what constitutes a “functional equivalent,”<sup>296</sup> the directive offered here is, in a way, reading out a rule implicit in the Court’s decision. This directive shaping the “functional equivalence” presumption highlights the reality that there may be some instances where the facts appear obvious enough to presume “functional equivalence,” so stating those instances offers industry confidence and judicial clarity; however, *because this is still a case-by-case inquiry*, interested parties are invited to rebut that presumption.<sup>297</sup> This directive in practice would, on the easy cases, essentially serve to establish a burden-shifting framework—one in which the burden shifts from the claimant (to argue that the discharge is the “functional equivalent” of a direct discharge) to the polluter (to rebut a finding of “functional equivalence”). Where there is a potentially viable claim, this burden-shifting framework would likely encourage potential claimants (who might otherwise lack confidence in the *Maui* test) to assert a claim under the CWA.

An interpretive guidance like the CAFO “functional equivalence” presumption offered by this Comment would further the spirit of *Maui* and the CWA by ensuring that the caselaw faithfully works to protect at-risk communities, particularly when there is, in fact, an actual “functional equivalent” of a direct discharge. This directive would promote regulation of CAFOs similar in characteristics to the eastern North Carolina CAFOs listed in Appendix 1, as a significant number of them, at minimum, would fall squarely within the temporal component of this rule. By including CAFOs within the application of *Maui* and by prudently extending that application—conservatively enough to not overrun either the law or spirit of *Maui*, but liberally enough to cover a generous number of polluting CAFOs—these environmental justice communities can be afforded a new doctrinal tool that can provide meaningful help to them, even if it might not be a savior to all of their

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<sup>295</sup> See, e.g., William J. Rawlings, *Legal Effect of Presumptions and Inferences*, 2 S.D. L. REV. 76, 76 (1957) (discussing legal presumptions). One of the most widely quoted presumptions is that an accused person is presumed innocent until proven guilty. See, e.g., *Taylor v. Kentucky*, 436 U.S. 478, 483 (1978).

<sup>296</sup> See *Maui*, 140 S. Ct. at 1476.

<sup>297</sup> A rebuttable presumption in the law is an assumption that will be accepted as true unless someone proves otherwise. There are countless rebuttable presumptions, littered in virtually every area of law. A quintessential example is that a defendant is innocent until proven guilty. A less well-known example is that in actions for a vaccine-related injury or death in Colorado, there is a rebuttable presumption that the injury or death was not due to the vaccine if the injury or death does not fall within the parameters of the vaccine injury table set forth in the National Childhood Vaccine Injury Act. Colo. Rev. Stat. Ann. § 25-4-909(4).

woes.<sup>298</sup> Perhaps most importantly, this directive would provide helpful guidance moving forward on interpreting what appears to be a very murky area of CWA jurisprudence, keeping the “easy cases easy”<sup>299</sup> for potential claimants, defendants, and judges around the country.

#### IV. BEYOND CAFOS, BEYOND *MAUI*

This Comment focuses on applying the *Maui* test to CAFOs and suggests a framework for doing so. However, the utility of this Comment can stretch beyond CAFOs, both for other sources of groundwater pollution under *Maui*<sup>300</sup> and for individual states to draw upon when reforming state-level regulations of groundwater protection. State legislatures can adopt regulations for CAFOs that fall within this suggested presumption or a similar one, perhaps with stricter lagoon standards with respect to the design of the lagoons themselves. Alternatively, state law can establish presumptions of discharge for CAFOs that fall under this suggested presumption or a similar one.<sup>301</sup>

Action by the post-Trump EPA offers another avenue to adopt an interpretive guidance like the CAFO “functional equivalence” presumption advanced by this Comment. By issuing a draft guidance similar (in procedural form but not in substance) to the one already offered by the Trump Administration,<sup>302</sup> subsequent administrations can provide clarity for the courts, federal agencies, claimants, and potential defendants. The EPA can even adopt these guidelines in the form of a general permit.

#### CONCLUSION

*Maui* was explicitly directed towards closing loopholes inconsistent with the spirit of the CWA. In the context of CAFOs, these lagoons could be considered

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<sup>298</sup> Even with successful situational *Maui* challenges against CAFOs for groundwater challenges, these communities still must deal with many other issues, including direct discharges to surface waters, lack of adequate information and enforcement, and any potential RCRA or Clean Air Act violations that continue to malign their health and quality of life.

<sup>299</sup> See *supra* note 285 and accompanying text.

<sup>300</sup> The main general prescriptive concept advanced in this Comment—that courts, when applying a *Maui* analysis, adopt presumptions that make “the easy cases easy”—can find applications in other sectors such as coal ash ponds or waste treatment plants, but we do not advance the viability of those applications beyond noting here the potential utility of this Comment in such an endeavor. See *Florida v. Jardines*, 569 U.S. 1, 9 (2013) (“One virtue of the Fourth Amendment’s property-rights baseline is that it keeps easy cases easy.”).

<sup>301</sup> A state could require, for example, that any CAFO located within one mile of a jurisdictional waterbody has a presumption of discharge, legislating to offset the presumption that CAFOs do not discharge.

<sup>302</sup> See *supra* Part I.B.5 (discussing the EPA guidance memorandum promulgated under the Trump Administration).

an example of such an intolerable loophole. Storing massive quantities of animal waste in such a location (e.g., poorly constructed lagoons with dilapidated clay liners) is a definite way to pollute the groundwater and, in many cases, surface water located less than perhaps a half-mile down the road. In *Maui*, the Supreme Court opened the door for lower courts to either broadly combat water pollution or narrowly limit the test's application. A narrow application of *Maui* would allow polluters to continue dodging their responsibility to maintain the health of the nation's waters. This Comment's proposed interpretive guidance offers an avenue to faithfully effectuate the purpose of the nation's laws to meaningfully protect one of its most important and ever-threatened resources.

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APPENDIX<sup>303</sup>

Name of Facility	Permit Number	Permit Type	Lagoons	Location	Distance to SHC
Circle K Farm I & II	AWI310077	Animal Individual State	2	398 Graham Dobson Rd.	~0.1 miles
Stockinghead Creek Farm	AWI310048	Animal Individual State	2	1042 Stockinghead Creek Rd.	~0.4 miles
Carter & Sons Hog Farm	AWS310160	Swine State COC	3	112 Dobson Chapel Rd.	~0.3 miles
Hog-Pack #2	AWS310812	Swine State COC	3	1552 Dobson Chapel Rd.	~0.4 miles
JBK Kilpatrick Farms Inc.	AWS310407	Swine State COC	1	1650 NC Hwy 50 S	~0.1 miles
William Edward Brock Farm	AWS310386	Swine State COC	2	2369 Pasture Branch Rd.	~0.3 miles

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<sup>303</sup> This Appendix displays certain CAFO location sites in Stocking Head Creek (“SHC”) to highlight how close CAFOs are oftentimes located to jurisdictional bodies of water.