

Underground Pathways to Pollution: The Need for Better Guidance on Groundwater Hydrologically Connected to Surface Water

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In 2018, the Fourth, Sixth, and Ninth Circuits addressed whether groundwater with a sufficient hydrological connection to navigable surface water should fall within the scope of the Clean Water Act. In two simultaneously released decisions, the Sixth Circuit held that the Clean Water Act does not apply to hydrologically connected groundwater. Conversely, the Fourth and Ninth Circuits agreed that the Clean Water Act does cover hydrologically connected groundwater. However, the Fourth and Ninth Circuits took two distinct approaches when coming to their decisions. The Fourth Circuit evaluated whether or not there was a “direct hydrological connection”—a legal standard previously endorsed by the Environmental Protection Agency—between the point source and the affected surface waters. The Ninth Circuit created its own legal test, which requires that pollutants be “fairly traceable” to the point source and present at a “more than de minimis” amount in order to fall within the scope of the Clean Water Act. In February 2019, the Supreme Court granted certiorari to the Ninth Circuit’s case to determine whether hydrologically connected water is covered by the Clean Water Act, which took the debate out of the agency’s hands. In order to have prevented this issue from being left to courts to decide, environmental groups should have lobbied the Environmental Protection Agency to promulgate a rule during an environmentally-friendly administration. Regardless, if the Ninth Circuit’s case is affirmed, the Environmental Protection Agency should still promulgate a rule expanding upon the Ninth Circuit decision

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The main cases discussed in this Note are still undergoing litigation. The information in this Note is current as of early June 2019.

that clearly states that hydrologically connected groundwater is covered by the Clean Water Act and provides guidelines for determining the extent of groundwater connectivity. This Note suggests that such a rule should adopt the Ninth Circuit’s legal test, consider scientific techniques for determining connectivity, and suggest different guidelines for beneficial water reuse projects.

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INTRODUCTION

Since around 2008, scientists started to notice increased water temperatures and algal blooms off of Kahekili Beach, a popular snorkel spot on the western

coast of Maui, Hawai‘i.¹ Water and algae samples collected from the beach contained increased levels of pharmaceuticals and organic waste indicator compounds, which likely originated from four wastewater injection wells at the Lahaina Wastewater Treatment Facility (LWTF) one third of a mile away.² In June 2013, scientists at the University of Hawai‘i at Mānoa published a study that conclusively linked two of the four LWTF injection wells to the increased effluent discharges of organic compounds.³ Researchers found that tracer dye added to the wastewater injection wells started to appear in water along the coast within three months and reached peak concentrations within nine to ten months.⁴ This discovery sparked a debate over whether the Clean Water Act (CWA) applies to groundwater that is connected to navigable waters, and if so, the extent of connectivity that is required to hold polluters liable.

There is currently a circuit split over whether or not the CWA applies to point sources that release pollutants into groundwater with a hydrological connection to navigable surface waters (hydrologically connected groundwater). In *Upstate Forever v. Kinder Morgan Energy Partners and Hawai‘i Wildlife v. County of Maui*, the Fourth and Ninth Circuits, respectively, agreed that pollutants need not enter navigable waters directly from a point source to violate the CWA.⁵ However, in the simultaneously released cases of *Kentucky Waterways Alliance v. Kentucky Utilities Co.* and *Tennessee Clean Water Network v. Tennessee Valley Authority*, the Sixth Circuit disagreed with the Fourth and Ninth Circuits and held that the CWA does not apply to pollutants released into groundwater regardless of whether there is a hydrological connection to navigable surface waters.⁶ In both these Sixth Circuit cases, the court suggested that pollutants discharged from a coal ash pit via hydrologically connected groundwater into navigable waters should be governed under the Resource Conservation and Recovery Act instead of the CWA.⁷

Although the Fourth and Ninth Circuits agreed that the CWA should apply to hydrologically connected groundwater, they disagreed over which legal standard should be used to evaluate the extent of connection necessary. In a two-to-one decision, the Fourth Circuit held that a pollutant need not be channeled

1. CRAIG R. GLENN ET AL., LAHAINA GROUNDWATER TRACER DYE STUDY – LAHAINA, MAUI, HAWAI‘I: FINAL REPORT ES-5 (2013), <http://earthjustice.org/sites/default/files/Lahaina-Tracer-Dye-Study.pdf>.

2. *Id.*; see *Kahekili Beach Park*, MAUIGUIDEBOOK.COM (last visited Jun. 2, 2019), <http://mauiguidebook.com/beaches/kahekili-beach-park/>.

3. Glenn et al., *supra* note 1, at ES-3.

4. *Id.*

5. See *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 744 (9th Cir. 2018); see also *Upstate Forever v. Kinder Morgan Energy Partners, L.P.*, 887 F.3d 637, 649 (4th Cir. 2018).

6. See *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 934 (6th Cir. 2018); see also *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436, 443 (6th Cir. 2018).

7. See *Ky. Waterways*, 905 F.3d at 939–40; see also *Tenn. Clean Water*, 905 F.3d at 446.

directly by a point source into navigable waters to violate the CWA.⁸ The court found that there was a “direct hydrological connection” between Kinder Morgan’s leaky fuel pipeline and a nearby river, which constituted a violation of the CWA.⁹ Meanwhile, the Ninth Circuit unanimously held that a discharge of pollutants from a point source “fairly traceable” to navigable waters at a “more than *de minimis*” amount violates the CWA.¹⁰ The court found that the organic matter at Kahekili Beach was both “fairly traceable” to the LWTF through the use of tracer dye testing and present at a “more than *de minimis*” amount.¹¹

The Ninth Circuit’s holding and departure from the Environmental Protection Agency’s (EPA) “direct hydrological connection” standard sparked the current controversy over the coverage of hydrologically connected groundwater under the CWA and the necessary extent of connection between groundwater and surface waters. Less than one month after the Ninth Circuit published its *Hawai’i Wildlife* opinion in February 2018, EPA published a notice in the Federal Register soliciting comments on its “direct hydrologic connection” standard seemingly as a result of the court’s holding.¹²

The County of Maui and Kinder Morgan Energy Partners—the defendants in *Hawai’i Wildlife* and *Kinder Morgan*, respectively—both filed petitions for a writ of certiorari with the U.S. Supreme Court in August 2018.¹³ In an unusual move, the justices asked the Office of the Solicitor General to give its opinion on the two cases within a one-month deadline, presumably so the cases could be heard before the end of the October 2018 term.¹⁴ However, the Court granted certiorari to only *Hawai’i Wildlife* on February 19, 2019, and will most likely hear the oral argument for this case during the October 2019 term.¹⁵ The Court

8. See *Kinder Morgan*, 887 F.3d at 650–51. The dissent mainly focused on the lack of subject matter jurisdiction for the citizen suit rather than the presence or absence of a hydrological connection. *Id.* at 653 (Floyd, J., dissenting).

9. *Id.* at 651. EPA voiced its support for the “direct hydrological connection standard” in its amicus brief for *Hawai’i Wildlife*. See Brief for the United States as Amicus Curiae in Support of Plaintiffs-Appellees at 5, *Hawai’i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737 (9th Cir. 2018) (No. 15-17447) [hereinafter EPA Amicus Brief].

10. *Hawai’i Wildlife*, 886 F.3d at 749.

11. *Id.*

12. Clean Water Act Coverage of “Discharges of Pollutants” via a Direct Hydrologic Connection to Surface Water, 83 Fed. Reg. 7126 (Feb. 20, 2018) (to be codified at 40 C.F.R. pt. 122).

13. Petition for Writ of Certiorari, *Hawai’i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737 (9th Cir. 2018) (No. 18-260); Petition for Writ of Certiorari at 23–24, *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637 (4th Cir. 2018) (No. 18-268). The *Tennessee Clean Water* plaintiffs also filed for certiorari in April 2019. See Petition for Writ of Certiorari, *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436 (6th Cir. 2018) (No. 18-1307).

14. See Amy Howe, *Two new CVSGs – on a deadline*, SCOTUS BLOG (Dec. 3, 2018), <https://www.scotusblog.com/2018/12/two-new-cvsgs-on-a-deadline/> (stating that the justices usually do not give the solicitor general a deadline for these types of opinions).

15. Orders in Pending Cases, 586 U.S. 1, 3 (Feb. 19, 2019), https://www.supremecourt.gov/orders/courtorders/021919zor_758b.pdf; see Amy Howe, *Justices take up Clean Water Act case, rebuke Texas court in death penalty case*, SCOTUS BLOG (Feb. 19, 2019), <https://www.scotusblog.com/2019/02/justices-take-up-clean-water-act-case-rebuke-texas-court-in-death-penalty-case/>. In late April 2019, Maui County council members stated that they were considering settling

will only address the question of whether hydrologically connected groundwater is covered by the CWA,¹⁶ but it is unclear if they will make any determinations on the level of connection required.

The four 2018 circuit court cases regarding hydrologically connected groundwater present two main overall issues: (1) whether or not hydrologically connected groundwater is covered by the CWA; and (2) if it is, what extent of connection is necessary. This Note first argues that a Supreme Court decision on this issue could have been avoided if environmental groups had prioritized lobbying EPA to promulgate a clear rule on pollutants entering waters of the United States¹⁷ through groundwater.¹⁸ Second, now that this issue is in the hands of the Supreme Court, if *Hawai'i Wildlife* is affirmed, this Note argues that EPA should promote the same scientific methods and legal reasoning that led the Ninth Circuit to come up with the “fairly traceable” standard. Such a rule would better effectuate the purpose of the CWA,¹⁹ especially in cases where the source of pollution and extent of connection are contested.

In advocating for this approach, this Note first begins with a brief history of the CWA, its relationship to groundwater, and how courts have interpreted this relationship. Second, it discusses the current legal standards courts use to determine the required level of connectivity in cases involving hydrologically connected groundwater in order to apply the CWA. Third, it discusses the current EPA and state guidance available and how they could have been improved prior to the Supreme Court granting certiorari. Finally, it suggests scientific and legal considerations that courts and polluters should be required to consider if *Hawai'i Wildlife* is affirmed, and that EPA should use as the basis for any future rule on this issue.

the case due to concerns that the Supreme Court might “gut the Clean Water Act.” Juan Carlos Rodriguez, *Maui County Weighing Settlement Of High Court Water Case*, LAW 360 (Apr. 30, 2019), <https://www.law360.com/articles/1154848>. However, it is unclear whether settlement will actually happen. Weeks later, the County submitted a merits brief reaffirming its desire for the Court to reverse the Ninth Circuit’s holding. Juan Carlos Rodriguez, *Maui Tells High Court To Reverse CWA Ruling Amid Deal Talks*, LAW 360 (May 9, 2019), <https://www.law360.com/articles/1158020>. The County has not settled the case as of June 2019.

16. See Howe, *supra* note 14.

17. The term “waters of the United States” is used to define the term “navigable waters” covered by the CWA. See *Rapanos v. United States*, 547 U.S. 715, 723 (2006). Currently, the definition of this term is debated. See WATERS OF THE UNITED STATES (WOTUS) RULEMAKING: ABOUT WATERS OF THE UNITED STATES, <https://www.epa.gov/wotus-rule/about-waters-united-states> (last visited Nov. 23, 2018).

18. In *Chevron U.S.A., Inc. v. Natural Resources Defense Council*, the Supreme Court held that courts should defer to the expertise of agencies if Congress has not acted on the issue. 467 U.S. 837, 842–43 (1984). If EPA were to have promulgated a rule on this topic, courts would likely have had to defer to it under this holding. See *id.*

19. The main objective of the CWA is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a) (2012).

I. THE CLEAN WATER ACT AND ITS RELATIONSHIP TO GROUNDWATER

Congress enacted the CWA in 1972 with the objective to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”²⁰ It sets a national policy prohibiting the “discharge of toxic pollutants in toxic amounts”²¹ and aims to control both point source and nonpoint sources of water pollution, but does not explicitly cover hydrologically connected groundwater.²² Under the CWA, the discharge of any pollutant into covered waters is prohibited unless permitted by the National Pollutant Discharge Elimination System (NPDES).²³ Through the NPDES system, EPA and authorized state agencies issue permits to polluters in order to control the discharge of pollutants from point sources.²⁴ NPDES permits specify the acceptable amount of pollutants a polluter can discharge and the “best management practices” for achieving those levels.²⁵

There are three major debates attempting to reconcile the CWA’s relationship to groundwater: (1) whether a point source is still covered by the CWA if it disposes pollutants directly into groundwater; (2) whether hydrologically connected groundwater fits into the CWA’s plain meaning and legislative history; and if the answers to the first two questions are yes, (3) what level of groundwater connectivity between a point source and a navigable body of water is sufficient to fall under the CWA.²⁶ Because the CWA does not mention hydrologically connected groundwater, and EPA provides only limited guidance on this issue, questions about the CWA’s applicability to groundwater pollution have generally been left to the courts.²⁷ Courts have generally

20. *Id.*

21. The term “pollutant” includes “solid waste, . . . sewage, . . . sewage sludge, . . . industrial, municipal, and agricultural waste discharged into water.” 33 U.S.C. § 1362(6) (2012). It does not include incidental discharge from vessels and the proper disposal of water or gas into underground injection wells to facilitate oil and gas production. *Id.*

22. 33 U.S.C. §§ 1251(a)(3)–(7).

23. *See generally* 33 U.S.C. §§ 1311(a) (2012), 1342(a)(1) (2012).

24. 33 U.S.C. § 1342(a)(1). *See* ENVTL. PROT. AGENCY, NPDES PERMIT AUTHORIZATIONS, https://www.epa.gov/sites/production/files/2015-10/documents/state_npdes_program_status.pdf (last visited Nov. 3, 2018) (displaying map of states authorized to issue NPDES permits).

25. *See* ENVTL. PROT. AGENCY, NPDES PERMIT BASICS, <https://www.epa.gov/npdes/npdes-permit-basics> (last visited Dec. 14, 2018) (including a list of commonly asked questions and answers about NPDES permits).

26. *See, e.g.,* Hawai’i Wildlife v. Cty. Of Maui, 886 F.3d 737, 749 (9th Cir. 2018); Upstate Forever v. Kinder Morgan Energy Partners, 887 F.3d 637, 645 (4th Cir. 2018); Ky. Waterways All. v. Ky. Utils. Co., 905 F.3d 925, 934 (6th Cir. 2018); Tenn. Clean Water Network v. Tenn. Valley Auth., 905 F.3d 436, 443 (6th Cir. 2018).

27. For a list and summary of cases published prior to 2015 that have addressed this question, *see* Allison L. Kvien, *Is Groundwater That Is Hydrologically Connected to Navigable Waters Covered Under the CWA?: Three Theories of Coverage & Alternative Remedies for Groundwater Pollution*, 16 MINN. J.L. SCI. & TECH. 957, 1000 (2015); *see also* James W. Hayman, *Regulating Point-Source Discharges to Groundwater Hydrologically Connected to Navigable Waters: An Unresolved Question of Environmental Protection Agency Authority under the Clean Water Act*, 5 BARRY L. REV. 95, 110 (2005).

answered the first two questions in the affirmative in the cases of groundwater with a clear hydrological connection to surface water.²⁸

A. Point Source Pollution

The CWA defines the “discharge of a pollutant” covered by the CWA as “any addition of any pollutant to navigable waters from any point source.”²⁹ The statute further defines “point source” as “any discernible, confined and discrete conveyance, including but not limited to any . . . conduit, [or] well . . . from which pollutants are or may be discharged.”³⁰ This definition excludes agricultural runoff.³¹ There is a major disagreement about whether or not the act of contamination passing through groundwater disqualifies the source from being considered a point source.

Courts have held that nonpoint sources that convey pollutants can still fall under the CWA’s definition of a point source. In *South Florida Water Management District v. Miccosukee Tribe of Indians*, the Supreme Court held that a pump that actively conveyed polluted water to navigable surface waters could be considered a point source under the CWA.³² The Court stated that point sources do not need to generate pollutants themselves, but “need only convey the pollutant to ‘navigable waters.’”³³ The Second Circuit expanded on this interpretation in *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York*, and held that a point source included the “proximate source from which the pollutant is directly introduced to the destination water body.”³⁴

The Second Circuit addressed the issue of pollutants travelling through land between point sources and covered surface waters in *Waterkeeper Alliance, Inc. v. EPA*.³⁵ In this case, farm groups challenged EPA’s rule on Concentrated Animal Feeding Operations (CAFOs) because it would regulate uncollected discharges from CAFOs as a point source instead of a nonpoint source, and would subject farmers to liability under the CWA.³⁶ The Second Circuit upheld the classification of CAFOs as point sources for uncollected discharges because they are considered “the proximate source” of pollutants even though they are not channelized into a single point before reaching surface waters.³⁷

In *Hawai‘i Wildlife and Kinder Morgan*, both the Ninth and Fourth Circuits respectively held that a point source that releases pollutants into groundwater is

28. See *infra* Part I.0.

29. 33 U.S.C. § 1362(12). For an explanation of what constitutes “navigable waters” under the CWA, see *Rapanos v. United States*, 547 U.S. 715, 732 (2006). This Note does not address groundwater that may impact contested navigable waters such as wetlands and ephemeral streams.

30. 33 U.S.C. § 1362(14).

31. *Id.*

32. 541 U.S. 95, 105 (2004).

33. *Id.*

34. 273 F.3d 481, 493 (2d Cir. 2001).

35. 399 F.3d 486 (2d Cir. 2005).

36. *Id.* at 510.

37. *Id.* (quoting *Catskill Mountains*, 273 F.3d at 493).

still considered a point source under the CWA when the pollutants reach navigable waters.³⁸ In *Hawai'i Wildlife*, the Ninth Circuit addressed the section of the CWA that classifies underground releases as a nonpoint source³⁹ by referring to the Supreme Court's reasoning in *Miccosukee*.⁴⁰ In that case, Justice O'Connor stated that traditional nonpoint pollution sources, like groundwater, are not exempt from the NPDES program "if they also fall within the [CWA's] 'point source' definition."⁴¹ In *Kinder Morgan*, the Fourth Circuit majority opinion did not directly address *Miccosukee*, but referred to the Second Circuit's reasoning in *Waterkeeper Alliance, Inc. v. EPA*.⁴² The Fourth Circuit stated, "Requir[ing] both the cause of the pollution and any intervening land to qualify as point sources, . . . would, in practice, 'impose a requirement not contemplated by the Act.'"⁴³

In contrast, both the Sixth Circuit and the Fourth Circuit dissent in *Kinder Morgan* deny that point sources that release to groundwater should still be considered a point source. In both *Kentucky Waterways* and *Tennessee Clean Water*, the Sixth Circuit rejected the idea that a point source that releases pollutants to underground channels can still be considered a point source under the CWA.⁴⁴ The *Kinder Morgan* dissent used the Supreme Court's holding in *Miccosukee* to challenge the majority's determination that a pollution source that passes pollutants through groundwater is still considered a point source.⁴⁵ The dissent distinguished the *Kinder Morgan* situation from *Miccosukee* by stating, "Kinder Morgan's pipeline is not presently leaking or releasing gasoline; therefore, the only relevant point source is not currently discharging . . . pollutants to navigable waters."⁴⁶ In addition, both the County of Maui and Kinder Morgan's petitions for certiorari directly challenge the interpretation that point sources that release pollutants to groundwater are still considered point sources under the CWA.⁴⁷

38. *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018); *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 650 (4th Cir. 2018).

39. See 33 U.S.C. § 1314(f)(D) (2012) (stating that sources that dispose pollutants underground into "wells or in subsurface excavations" are considered a nonpoint source).

40. See *Hawai'i Wildlife*, 886 F.3d at 750.

41. See *id.* (quoting *Miccosukee*, 541 U.S. 95 at 106 [emphasis removed]).

42. *Kinder Morgan*, 887 F.3d at 650.

43. *Id.*

44. *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 933 (6th Cir. 2018); *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436, 444 (6th Cir. 2018) (quoting *Kentucky Waterways*, 905 F.3d at 933).

45. *Kinder Morgan*, 887 F.3d at 659, (Floyd, J., dissenting) (stating that the point source must be directly involved in discharging pollutants).

46. *Id.* at 660 (Floyd, J., dissenting). In *Miccosukee*, the pump actively conveyed polluted water throughout its use. See *S. Fla. Water Mgmt. Dist. v. Miccosukee Tribe of Indians*, 541 U.S. 95, 100 (2004).

47. Petition for Writ of Certiorari *Kinder Morgan*, *supra* note 13, at 23–24; Petition for Writ of Certiorari at 18, *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 750 (9th Cir. 2018) (No. 18-260).

B. The Purpose and Goals of the CWA in Relation to Protecting Groundwater

The CWA does not explicitly protect groundwater, and its legislative history shows that this exclusion was intentional.⁴⁸ Therefore, polluters that release pollutants directly into groundwater are not always required to obtain NPDES permits. But, decades of rules promulgated by the EPA and court decisions have repeatedly stated that polluters that convey pollutants through groundwater connected to waters of the United States can be held liable for violating the CWA.⁴⁹

The legislative history of the CWA suggests that nonhydrologically connected groundwater is not included in the scope of the statute,⁵⁰ however, the statute does not explicitly address how courts should treat hydrologically connected groundwater. During congressional hearings on the CWA in the early 1970s, members of both the House and Senate rejected several proposals to include groundwater in the scope of the statute.⁵¹ Although Congress recognized the importance of the connection between groundwater and surface water,⁵² it declined to regulate groundwater as a whole because it “is so complex and varied from State to State.”⁵³

Although Congress decided not to include groundwater within the scope of waters covered by the text of the CWA, the EPA and the Army Corps of Engineers have offered additional guidance about the relationship between groundwater and waters of the United States. EPA has released two final rules that discuss when groundwater may be covered by the CWA in relation to water

48. See Petition for Writ of Certiorari Kinder Morgan, *supra* note 13, at 5–6 (stating that “Congress specifically rejected proposals to extend federal authority to reach discharges into groundwater”); *Water Pollution Control Legislation - 1971 (Proposed Amendments to Existing Legislation): Hearings before the Comm. on Pub. Works*, 92d Cong. 230 (1971).

49. See, e.g., Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations, 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991) (codified at 40 C.F.R. pt. 131); National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3016 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412); *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983 (E.D. Wash. 1994).

50. See Petition for Writ of Certiorari Kinder Morgan, *supra* note 13, at 5–6 (stating that “Congress specifically rejected proposals to extend federal authority to reach discharges into groundwater”); *Water Pollution Control Legislation - 1971 (Proposed Amendments to Existing Legislation): Hearings before the Comm. on Pub. Works*, 92d Cong. 230 (1971).

51. See Petition for Writ of Certiorari Kinder Morgan, *supra* note 13, at 5–6, 22–23 (noting various proposals to bring groundwater under the scope of the CWA); see also EPA, TECHNICAL SUPPORT DOCUMENT FOR THE CLEAN WATER RULE: DEFINITION OF WATERS OF THE UNITED STATES 16–17 (2015), https://www.epa.gov/sites/production/files/2015-05/documents/technical_support_document_for_the_clean_water_rule_1.pdf [hereinafter TECHNICAL SUPPORT DOCUMENT] (“EPA has never interpreted ‘waters of the United States’ to include groundwater”).

52. The Senate report stated, “it must be remembered that rivers, streams and lakes themselves are largely supplied with water from the ground – not surface runoff.” S. REP. NO. 92-414 (1971), *as reprinted in* 1972 U.S.C.C.A.N. 3668, 3739.

53. TECHNICAL SUPPORT DOCUMENT, *supra* note 51, at 16–17 (quoting S. REP. NO. 414 (1971), *as reprinted in* 1972 U.S.C.C.A.N. 3668, 3749).

quality standards on American Indian reservations and CAFOs.⁵⁴ However, in recent years, EPA has released two divergent interpretative statements on the matter.⁵⁵

1. EPA Rules

Prior to April 2019,⁵⁶ EPA had long considered hydrologically connected groundwater as covered by the CWA. This policy was first mentioned in EPA's 1990 final rule for the *NPDES Permit Application Regulations for Storm Water Discharges*.⁵⁷ In 1991, EPA again discussed hydrologically connected groundwater under the CWA in its final rule on the *Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations* (the Amendments).⁵⁸ The Amendments stated that both EPA and most courts have held that NPDES permits were required for "discharges to groundwater where there is a direct hydrological connection between groundwaters and surface waters."⁵⁹ Consistent with the legislative history of the CWA, the Amendments reiterated that "affected ground waters are not considered 'waters of the United States.'"⁶⁰ However, the Amendments also stated that discharges of pollutants to hydrologically connected groundwater were "regulated because such discharges are effectively discharges to the directly connected surface waters."⁶¹

EPA offered a much more detailed explanation of the "direct hydrological connection" standard in a proposed rule concerning *NPDES Permit Regulation and Effluent Limitations Guidelines and Standards for CAFOs* (CAFO rule) released in 2001.⁶² This proposed rule reaffirmed that hydrologically connected groundwaters were not considered waters of the United States, but that discharges to them should be regulated as such because they are connected to surface waters.⁶³ EPA supported extending the CWA to pollutants conveyed to

54. See 56 Fed. Reg. at 64,892; see also 66 Fed. Reg. at 3016.

55. Compare TECHNICAL SUPPORT DOCUMENT, *supra* note 51, at 17 (stating that hydrologically connected groundwater should still be covered under the CWA) with 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, 16,810 (Apr. 23, 2019) (stating that EPA does not believe that hydrologically connected groundwater should be covered by the CWA).

56. See 84 Fed. Reg. at 16,810.

57. National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed. Reg. 47,990, 47,997 (Dec. 2, 1990) (noting that groundwater with a "hydrological connection" to a surface water body is not exempt from the NPDES rule).

58. 56 Fed. Reg. at 64,892.

59. *Id.*

60. *Id.*

61. *Id.*

62. National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3016 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412).

63. *Id.* at 3018.

surface waters through groundwater “because ground water and surface water are highly interdependent components of the hydrologic cycle.”⁶⁴

The proposed CAFO rule also provided some guidelines as to what constitutes a “direct hydrologic connection” between groundwater and covered surface waters.⁶⁵ EPA based this standard off of court holdings up to 2001 that addressed hydrologically connected groundwater.⁶⁶ When evaluating their need for NPDES permits, the proposed rule suggested that polluters must undertake a factual inquiry when determining whether or not pollutants discharged to surface waters via groundwater have a “direct hydrologic connection.”⁶⁷ The proposed rule stated that polluters should consider “site specific factors, such as geology, flow, and slope,” which impact the amount of time and distance contaminants flow from the point source to navigable waters.⁶⁸ A “general hydrologic connection” was not sufficient, rather the rule required a clear connection between the point source and the navigable water.⁶⁹

EPA’s proposed CAFO rule also cited *Chevron* deference to support the validity of its interpretation of the CWA.⁷⁰ EPA understood the likelihood that discharges conveyed through groundwater will eventually reach covered surface waters and that “the goals of the CWA can only be fulfilled if those discharges are regulated.”⁷¹ In addition, it acknowledged that the discharge of pollutants to navigable waters via groundwater is a major gap that Congress did not consider while promulgating the CWA.⁷²

In the final version of the CAFO rule, EPA declined to enforce the proposed “direct hydrological connection” standard citing “scientific uncertainties and site-specific considerations.”⁷³ This was the result of sixty pages of public comments regarding the applicability of the CWA to groundwater, most of which challenged EPA’s authority to create regulations for groundwater, which typically falls under the authority of the states.⁷⁴ Despite the failure to promulgate an official rule which held CAFOs liable for discharges to groundwater, EPA stated that it still intended to “regulate discharges to hydrologically connected groundwater on a case-by-case basis.”⁷⁵

64. *Id.*

65. *Id.* at 3017.

66. *See id.* (discussing the holding in *Washington Wilderness Coalition v. Hecla Mining Company*, which stated hydrologically connected groundwater is covered under the CWA. 870 F. Supp. 983 (E.D. Wash. 1994)).

67. *Id.*

68. *Id.*

69. *Id.*

70. *Id.* at 3018. *See* discussion, *supra* note 18.

71. 66 Fed. Reg. at 3018.

72. *Id.*

73. National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7176, 7216 (Feb. 12, 2003) (codified at 40 C.F.R. pts. 122–23, 412).

74. *See* Hayman, *supra* note 27, at 115.

75. *Id.* at 117.

In 2008, EPA released a revised CAFO rule as a result of the Second Circuit's order in *Waterkeeper Alliance, Inc. v. EPA*, requiring owners of CAFOs to obtain NPDES permits if they discharge, or plan to discharge, waste to navigable waters.⁷⁶ The revised rule upheld EPA's position as stated in the 2003 final rule—to continue to evaluate the applicability of the CWA to point sources that discharge to groundwater with a “direct hydrologic connection to surface water” on a case-by-case basis.⁷⁷

2. Recent EPA Interpretations

EPA has addressed the issue of hydrologically connected groundwater under the CWA several times over the past four years. Although it has not released any new final rules on the matter, it has put out two interpretative statements. Most notably, the 2015 Clean Water Rule Technical Support Document⁷⁸ and an interpretative statement released in April 2019⁷⁹ demonstrated EPA's recent change in position on hydrologically connected groundwater.

In 2015, the EPA and the Army Corps of Engineers reaffirmed that nonhydrologically connected groundwater is not considered a “water of the United States” subject to NPDES permitting requirements under the CWA in their proposed Clean Water Rule.⁸⁰ Although not explicitly stated in the original CWA, the agencies decided to add groundwater to the list of excluded bodies of water because the two agencies had consistently interpreted the CWA as excluding it.⁸¹ Despite the language excluding groundwater in the proposed Clean Water Rule, EPA indicated that it would still consider surface waters impacted by hydrologically connected groundwater as falling under the CWA. In the Technical Support Document accompanying the proposed Clean Water Rule, EPA noted that the district court opinion in *Hawai'i Wildlife* is consistent with EPA's “direct hydrologic connection” standard even though it describes a slightly different legal standard—the conduit theory.⁸²

76. 399 F.3d 486, 524 (2d Cir. 2005); Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008) (codified at 40 C.F.R. pts. 9, 122, 412).

77. 73 Fed. Reg. at 70,420.

78. TECHNICAL SUPPORT DOCUMENT, *supra* note 51.

79. 84 Fed. Reg. at 16,810.

80. Clean Water Rule: Definition of “Waters of the United States,” 80 Fed. Reg. 37,054, 37,059 (June 29, 2015) (listing groundwater as an exclusion to the definition of “waters of the United States”). This definition of “waters of the United States” has been highly contested and has not been officially promulgated. In February 2018, EPA, the Army Corps of Engineers, and the Department of Defense added an applicability date to the rule. Definition of “Waters of the United States”—Addition of an Applicability Date to 2015 Clean Water Rule, 83 Fed. Reg. 5200, 5200 (Feb. 6, 2018). The Rule will not become effective until February 2020, which allows time for the Rule to be revised. *Id.*

81. Clean Water Rule: Definition of “Waters of the United States,” 80 Fed. Reg. at 37,059.

82. See TECHNICAL SUPPORT DOCUMENT, *supra* note 51, at 17. The district court opinion classifies groundwater as a “conduit” under the meaning of the CWA and is consistent with agency interpretation

In April 2019, EPA officially changed its decades-long stance on hydrologically connected groundwater in its *Interpretive Statement on Application of the CWA NPDES Program to Releases of Pollutants From a Point Source to Groundwater* (Interpretative Statement).⁸³ The Interpretative Statement stated that EPA believes that the CWA excludes all “releases of pollutants from a point source to groundwater from NPDES program coverage, regardless of a hydrologic connection.”⁸⁴ Because EPA prepared this statement in response to impending litigation, it is unclear how much weight it will have in the Court’s final decision.⁸⁵ EPA does not plan to enforce this rule in the Ninth and Fourth Circuits until the Supreme Court releases its opinion on the matter.⁸⁶

C. Court Interpretations of the CWA’s Applicability to Connected Groundwater

There is currently a circuit split about whether or not the CWA applies to hydrologically connected groundwater. Circuit courts that have addressed the uncertainty surrounding the CWA’s applicability to groundwater lacking a clear connection to surface waters have held that such groundwater is not covered by the CWA. However, most district⁸⁷ and circuit courts to address the applicability of the CWA to hydrologically connected groundwater have held the CWA applies to groundwater with a sufficient connection to navigable waters.⁸⁸

Most circuit courts that have directly addressed this issue also agree that polluting navigable waters through clearly hydrologically connected groundwater violates the CWA. For example, the Second Circuit in *Waterkeeper* upheld the CAFO rule regarding pollutants conveyed through groundwater to covered surface waters, stating that connected groundwater should be evaluated on a “case-by-case basis, rather than imposed uniformly.”⁸⁹ Likewise, the Tenth Circuit in *Quivera Mining Company v. EPA* held that contaminating

that a “direct hydrological connection” between the point source and navigable waters is subject to regulation under the CWA. *Id.*

83. See 84 Fed. Reg. at 16,810 (stating that EPA does not believe that hydrologically connected groundwater should be covered by the CWA).

84. *Id.*

85. See Juan Carlos Rodriguez, *EPA Flips Groundwater Stance Ahead Of High Court Case*, LAW 360 (Apr. 17, 2019), <https://www.law360.com/articles/1150806/epa-flips-groundwater-stance-ahead-of-high-court-case>.

86. *Id.*

87. *Washington Wilderness Coalition v. Hecla Mining Company* is often cited for this issue. 870 F. Supp. 983 (E.D. Wash. 1994). The Eastern District of Washington stated that groundwater is not a navigable water, but pollutants conveyed through it to surface waters can be a violation of the CWA. The court qualified this with the assertion that “[i]t is not sufficient to allege groundwater pollution, and then to assert a general hydrological connection [P]ollutants must be traced from their source to surface waters.” *Id.* at 990.

88. See Kvien, *supra* note 27, at 1000 (table of over thirty cases that have evaluated the CWA’s applicability to groundwater hydrologically connected to surface water prior to 2015 as well as their outcomes).

89. *Waterkeeper All., Inc. v. EPA*, 399 F.3d 486, 515 (2d Cir. 2005).

underground aquifers that impact navigable streams is subject to NPDES permitting under the CWA.⁹⁰ Similar to the reasoning in *Hawai'i Wildlife and Kinder Morgan*, both of these cases held that releases to groundwater may violate the CWA if the groundwater's impacts to navigable waters is significant enough.⁹¹

Parties that oppose the CWA covering hydrologically connected groundwater often cite decisions by the Fifth and Seventh Circuits that state that groundwaters that only have a small potential to be hydrologically connected to surface water are not covered by the CWA.⁹² But, these decisions did not address the applicability of the CWA to clearly hydrologically connected groundwater.⁹³ The plaintiffs did not demonstrate substantial surface water contamination in any of these cases and the courts decided not to address the issue of clearly hydrologically connected groundwater.⁹⁴ In *Exxon Corporation v. Train*, the Fifth Circuit held that EPA did not have authority under the CWA to require a permit for the disposal of pollutants into deep wells.⁹⁵ Although the court recognized the relationship between subsurface and surface waters, it ruled that the CWA did not apply to deep well discharges that did not reach surface waters.⁹⁶ The Fifth Circuit again reached the same decision in *Rice v. Harken Exploration Company* and asserted that the groundwater at issue was not covered by the CWA and that there was no clear hydrologic connection to surface waters.⁹⁷ Similarly, in *Village of Oconomowoc Lake v. Dayton Hudson Corporation*, the Seventh Circuit held that groundwater is not a protected water under the CWA and that the mere possibility of groundwater reaching surface water is not sufficient to extend coverage.⁹⁸

The Sixth Circuit is the only circuit court to reject the CWA's applicability to groundwater where there is clear evidence of a hydrological connection.⁹⁹ In

90. *Quivira Mining Co. v. EPA*, 765 F.2d 126, 130 (10th Cir. 1985).

91. *See id.*; *Waterkeeper*, 399 F.3d at 515; *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018); *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 651–52 (4th Cir. 2018).

92. *See, e.g.*, *Petition for Writ of Certiorari Kinder Morgan*, *supra* note 13, at 16–18 (citing *Rice v. Harken Exploration Co.*, 250 F.3d 264, 272 (5th Cir. 2001); *Vill. of Oconomowoc Lake v. Dayton Hudson Corp.*, 24 F.3d 962, 965–66 (7th Cir. 1994)).

93. *See Oconomowoc Lake*, 24 F.3d at 965 (stating that the “possibility that water from the pond will enter the local ground waters, and thence underground aquifers that feed lakes and streams” was not enough for pollution from a retention pond to be covered by the CWA); *Rice v. Harken Expl. Co.*, 250 F.3d 264, 272 (5th Cir. 2001) (stating that while there is evidence of groundwater contamination in the area, there is no clear evidence of a hydrological connection to the nearby river).

94. *See Rice*, 250 F.3d at 272 (stating that this case did not present an issue of clearly hydrologically connected waters); *Oconomowoc Lake*, 24 F.3d at 965–66.

95. 554 F.2d 1310, 1329 (5th Cir. 1977).

96. *Id.* at 1325.

97. 250 F.3d at 269, 272.

98. 24 F.3d at 965.

99. In *Kentucky Waterways*, tracer dye showed a connection between the ash pond and the surrounding ponds, and there were elevated levels of selenium in the ponds around the coal ash facility. *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 931, 933 (6th Cir. 2018). In *Tennessee Clean Water*,

Kentucky Waterways and *Tennessee Clean Water*, the Sixth Circuit explicitly rejected the CWA's applicability to clearly hydrologically connected groundwater.¹⁰⁰ The court stated that claims regarding coal mining operations should be evaluated under the Resource Conservation and Recovery Act framework instead.¹⁰¹ Despite this holding, the concurrence in part and dissent in part in *Kentucky Waterways* and the dissent in *Tennessee Clean Water* strongly supported the previous holdings by the Fourth and Ninth Circuits in *Kinder Morgan* and *Hawai'i Wildlife* because the Sixth Circuit's holding would create loopholes for polluters.¹⁰²

Except for the Sixth Circuit, most courts agree that groundwater with a clear hydrological connection to surface waters is covered by the CWA. The Supreme Court should follow over three decades of case law and pre-2019 EPA rulemaking and affirm the Ninth Circuit's holding on this issue in *Hawai'i Wildlife*.¹⁰³ However, there is not much guidance on the extent of connectivity required for the CWA to apply. The next Part will discuss various techniques and legal interpretations EPA and courts have used to determine the level of connection.

II. DETERMINING THE EXTENT OF CONNECTIVITY BETWEEN GROUNDWATER AND SURFACE WATER

Although both the Fourth and Ninth Circuits agreed that groundwater hydrologically connected to surface water is covered by the CWA, they used two different, but similar, legal tests for evaluating the extent of connection necessary in order to be covered. The Supreme Court is unlikely to resolve this issue when considering *Hawai'i Wildlife*,¹⁰⁴ but it should be an important consideration if the case is affirmed. The Fourth Circuit in *Kinder Morgan* used EPA's "direct hydrological connection" standard, and relied on the undisputed fact that a pipeline leak, which was less than one thousand feet from the polluted waterway,

the district court found that it was "more likely than not" that one of the ash ponds was leaking into the surrounding water and it was "simply implausible, . . . that the [ash pond] has not continued to, and will not continue to, suffer at least some leaking through karst features." *Tenn. Clean Water Network v. Tenn. Valley Auth.* 905 F.3d 436, 440 (6th Cir. 2018).

100. See *Kentucky Waterways*, 905 F.3d at 933; see also *Tennessee Clean Water*, 905 F.3d at 443. These two cases were released simultaneously by the same judges and contain very similar facts. Compare *Kentucky Waterways*, 905 F.3d at 927–28, with *Tennessee Clean Water*, 905 F.3d at 438.

101. See *Kentucky Waterways*, 905 F.3d at 939–40. See generally *Tennessee Clean Water*, 905 F.3d at 446 (arguing that the Resource Conservation and Recovery Act directly conflicts with the CWA and brings it out of its scope).

102. See *Kentucky Waterways*, 905 F.3d at 941 (Flake, J., concurring in part and dissenting in part); *Tennessee Clean Water*, 905 F.3d at 448–49 (Flake, J., dissenting). Judge Clay stated that the majority's holding would allow "polluters [to] avoid CWA liability by discharging their pollutants into groundwater, even if that groundwater flows immediately into a nearby navigable water." *Id.* at 449.

103. See Kvien, *supra* note 27, at 1000 (list of cases on this issue and their holdings).

104. The Court is only taking the case to determine whether or not the CWA applies to hydrologically connected groundwater. Orders in Pending Cases, 586 U.S. 1, 3 (Feb. 19, 2019), https://www.supremecourt.gov/orders/courtorders/021919zor_758b.pdf.

caused the pollution.¹⁰⁵ The Ninth Circuit in *Hawai'i Wildlife* relied on the fact that a scientific study conclusively linked the underground injection wells with pollution along the coastline, making the contamination “fairly traceable” to the point source at a “more than *de minimis*” amount.¹⁰⁶ In addition, the facts concerning the source of contamination in these two cases were also very different. In *Kinder Morgan*, it was undisputed that the groundwater near the point source was hydrologically connected to surface waters, but in *Hawai'i Wildlife*, there was an initial dispute about whether or not all four injection wells contributed to pollution at the shore.¹⁰⁷

There is no clear scientific or legal justification that defines either of these two connection standards. The standard used in *Hawai'i Wildlife* is based in case law and the standard used in *Kinder Morgan* is based in EPA's prior rulemaking.¹⁰⁸ However, both require the court's fact-specific determination of whether the connection is sufficient.¹⁰⁹ Because these two standards may lead to different outcomes, it is important to evaluate all the physical and geological factors that impact the connectivity between polluted groundwater and surface water. It remains unclear whether pollutants that are “fairly traceable” and present at “more than [a] *de minimis*” amount would be sufficient to amount to a “direct hydrological connection.”

A. Factors That Impact Connectivity

Groundwater is directly connected to surface water and plays an integral role in the hydrologic cycle.¹¹⁰ Surface bodies of water constantly mix with underlying groundwater, and this exchange facilitates chemical interactions that can affect the characteristics of downstream aquatic systems.¹¹¹ In addition, point source discharges as defined by the CWA can have a significant impact on surface waters (Figure 1) even when they are located inland.¹¹²

105. *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 651–52 (4th Cir. 2018).

106. *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018).

107. *See Kinder Morgan*, 887 F.3d at 651–52; *Hawai'i Wildlife*, 886 F.3d at 742 (stating that the County conceded that the wastewater in Wells 1 and 2 were connected to the pollution even though dye from these two wells did not appear at the shore).

108. *Hawai'i Wildlife*, 886 F.3d at 749 n.3; *Kinder Morgan*, 887 F.3d at 651.

109. *See Kinder Morgan*, 887 F.3d at 652.

110. THOMAS C. WINTER ET AL., *GROUNDWATER AND SURFACE WATER A SINGLE RESOURCE* 2 (1998).

111. *Id.* at 23.

112. *Id.* at 66.

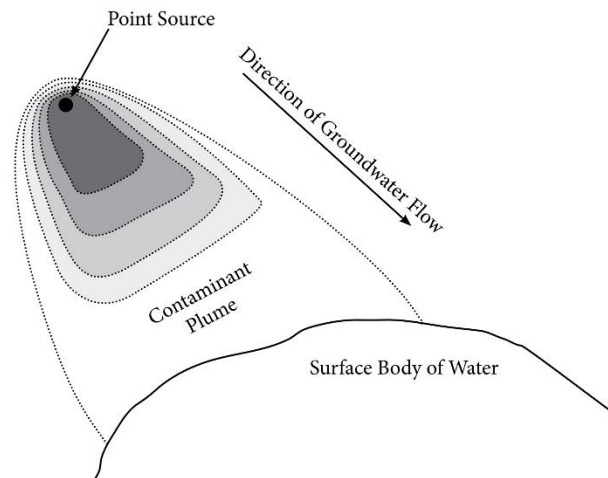


Figure 1: Illustration of how point sources can impact navigable surface waters through hydrologically connected groundwater.¹¹³

The direction of groundwater flow, the topography of the area, and the distance between the point source and navigable water all factor into how groundwater impacts and interacts with surface water.¹¹⁴ However, there are no definite legal or scientific guidelines for what constitutes a hydrologic connection. When making factual determinations of whether or not groundwater impacts navigable waters, courts generally look towards scientific studies which show the “time it takes groundwater to travel, depth of the groundwater, flow (presumably direction and rate), climate, geology, soil type, topography, elevation, and slope.”¹¹⁵ The 2001 proposed CAFO rule also contains a list of studies and tools NPDES permit writers can use to determine connectivity, but courts tend to only refer to the CAFO rule for the “direct hydrological connection” standard and not for these tools.¹¹⁶

Other important factors that impact hydrologic connectivity are the geologic structures through which groundwater passes before reaching surface waters and the rate of natural attenuation.¹¹⁷ When there is limestone bedrock, the natural acidity from groundwater dissolves channels into the rock, which makes the flow of groundwater unpredictable.¹¹⁸ This condition known as “karst” may further

113. Figure made by author, adapted from *id.* at 56.

114. See Kvien, *supra* note 27, at 975; see generally WINTER ET AL., *supra* note 110 (discussing natural factors that impact the interaction between groundwater and surface water).

115. Kvien, *supra* note 27, at 976 (citing *Waterkeeper All., Inc. v. EPA*, 399 F.3d 486, 515 (2d Cir. 2005); *Greater Yellowstone Coal. v. Larson*, 641 F. Supp. 2d 1120, 1138 (D. Idaho 2009)).

116. See National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3018–19 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412); see also *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 651 (4th Cir. 2018); see also *infra* II.B.2.

117. See Hayman, *supra* note 27, at 123.

118. See *id.*

complicate evaluating hydrologic connections.¹¹⁹ In addition, “natural attenuation”—natural processes such as biodegradation, dilution, and evaporation that decrease pollutant concentrations—may remove or dilute pollutants making a connection more difficult to establish.¹²⁰

B. How Courts Have Interpreted Connectivity

The “fairly traceable” and “direct hydrological connection” standards articulated by the Ninth and Fourth Circuits are based in case law and courts’ interpretations of EPA guidance and the text of the CWA. Because there was limited guidance from EPA on the applicability of the CWA to groundwater prior to April 2019,¹²¹ courts looked to the Supreme Court’s decisions regarding the applicability of the CWA to indirect releases of pollutants to navigable waters.¹²² Courts also relied on theories advanced by courts in prior cases when deciding on the appropriate level of connection between point sources and surface waters.¹²³

1. Rapanos and the “Significant Nexus” Test

Courts evaluating questions concerning the requisite connection between point sources and navigable waters usually refer to the Supreme Court’s three prior holdings concerning the coverage of the CWA.¹²⁴ In the first case, *United States v. Riverside Bayview Homes*, the Court discussed the scope of the CWA’s definition of “navigable waters” and held that wetlands adjacent to navigable waters are considered covered waters of the United States under the statute.¹²⁵ In the second case, *Solid Waste Agency of North Cook County v. Army Corps of Engineers*, the Court declined to extend the definition of waters of the United States covered by the CWA to isolated bodies of water even though they may be used by migratory birds or affect interstate commerce.¹²⁶ *Rapanos v. United*

119. *Id.*

120. *Id.*; see generally EPA, A CITIZEN’S GUIDE TO MONITORED NATURAL ATTENUATION (2012).

121. See *supra* section I.B.2.

122. The three most prominent cases that address the question of connectivity are *Rapanos v. United States*, 547 U.S. 715 (2006), *Solid Waste Agency of N. Cook Cty. v. Army Corps of Eng’rs*, 531 U.S. 159 (2001), and *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121 (1985).

123. Before the Ninth Circuit decision for *Hawai’i Wildlife*, scholars started to evaluate the widespread implications of the District Court for the District of Hawai’i’s “conduit theory.” See *Hawai’i Wildlife Fund v. Cty. of Maui*, 24 F. Supp. 3d 980, 996 (D. Haw. 2014); Kvien, *supra* note 27, at 987–88; Damien Schiff, *Keeping the Clean Water Act Cooperatively Federal - Or, Why the Clean Water Act Does Not Directly Regulate Groundwater Pollution*, 42 WM. & MARY ENVTL. L. & POL’Y REV. 447, 467 (2018). District courts in Tennessee and Puerto Rico have also defined their own connection tests to determine whether groundwater is sufficiently connected to surface water in order to be covered under the CWA. See *Petition for Writ of Certiorari, Kinder Morgan*, *supra* note 13, at 19–20.

124. For a full discussion of these three cases and how they relate to groundwater, see generally Michael C. Blumm & Steven M. Thiel, *(Ground) Waters of the United States: Unlawfully Excluding Tributary Groundwater from Clean Water Act Jurisdiction*, 46 ENVTL. L. 333, 351–60 (2016).

125. 474 U.S. at 135.

126. 531 U.S. 159, 167 (2001).

States is the most recent Supreme Court decision in the long debate over what qualifies as “navigable waters” protected under the CWA.¹²⁷ When evaluating questions about the sufficiency of a hydrologic connection, most courts have relied upon Justice Kennedy’s concurrence in *Rapanos*, which states that there must be a “significant nexus” between the point source and navigable waters for a non-navigable body of water to be covered by the CWA.¹²⁸

Prior to *Hawai‘i Wildlife* and *Kinder Morgan*, courts relied on these Supreme Court holdings to justify covering hydrologically connected groundwater under the CWA. In *Northern California River Watch v. City of Healdsburg*, the Ninth Circuit used the Supreme Court’s reasoning in *Riverside Homes* when determining that surface water and groundwater contamination stemming from a pond at a waste treatment facility were covered by the CWA.¹²⁹ The court supported its conclusion by noting that the pond was “adjacent” to the Russian River, like the situation in *Riverside Homes*, and had a “significant nexus” to the River like the waters in *Rapanos*.¹³⁰ In addition, the pond “significantly affects the physical, biological and chemical integrity of the Russian River.”¹³¹ The district court opinion for *Hawai‘i Wildlife* also cited the *Rapanos* “significant nexus” test in its reasoning.¹³²

Neither the *Hawai‘i Wildlife* nor the *Kinder Morgan* courts relied on the Supreme Court’s “significant nexus test,” yet both referred to Justice Scalia’s plurality decision concerning which waters are covered by the CWA.¹³³ Justice Scalia emphasized that the CWA does not cover the “‘addition of any pollutant directly to navigable waters from any point source,’ but rather the ‘addition of any pollutant to navigable waters.’”¹³⁴ For example, under this test, the CWA still covers pollutants dumped into a wetland or a non-navigable tributary that end up in a navigable body of water. The circuit courts cited the fact that Justice Scalia also intended to follow lower courts that have held that any “pollutant ‘that naturally washes downstream likely violates § 1311(a)’” of the CWA.¹³⁵

127. 47 U.S. 715 (2006).

128. *Id.* at 767 (Kennedy, J., concurring); see Blumm & Thiel, *supra* note 124, at 363–65 (discussing how courts have treated Kennedy’s concurrence in *Rapanos*). Because *Rapanos* was a plurality and no five justices agreed on a single test, courts and EPA have adopted Justice Kennedy’s concurrence since it represents the middle ground between all the justices. See *id.*

129. *N. Cal. River Watch v. City of Healdsburg*, 496 F.3d 993, 995, 1001 (9th Cir. 2007).

130. *Id.* at 1000.

131. *Id.* at 1001.

132. *Hawai‘i Wildlife Fund v. Cty. of Maui*, 24 F. Supp. 3d 980, 996 (D. Haw. 2014).

133. See *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 748 (9th Cir. 2018); *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 649 (4th Cir. 2018).

134. *Hawai‘i Wildlife*, 886 F.3d at 748 (quoting *Rapanos v. U.S.*, 547 U.S. 715, 743 (2006) (plurality opinion) (emphasis in original) (quoting 33 U.S.C. §§ 1311(a), 1362(12)(A))); *Kinder Morgan*, 887 F.3d at 649 (quoting *Rapanos*, 547 U.S. at 743 (emphasis in original) (quoting 33 U.S.C. §§ 1311(a), 1362(12)(A))).

135. *Hawai‘i Wildlife*, 886 F.3d at 748 (quoting *Rapanos*, 547 U.S. at 743 (emphasis in original) (quoting §§ 1311(a), 1362(12)(A))); see *Kinder Morgan*, 887 F.3d at 650.

The Sixth Circuit majority explicitly rejected this interpretation of Scalia's plurality decision in both *Kentucky Waterways* and *Tennessee Clean Water*. The majority asserted that the Fourth and Ninth Circuits took the aforementioned quote "out of context in an effort to expand the scope of the CWA well beyond what the *Rapanos* Court envisioned."¹³⁶ They interpreted Justice Scalia's quote regarding the "addition of any pollutant to navigable waters" much differently.¹³⁷ The Sixth Circuit majority believed that Justice Scalia only intended the CWA to cover pollutants that flow from point source to point source—such as a pump—into a navigable body of water, and not pollutants that flow from point source to a traditional nonpoint source—like groundwater—into a navigable body of water.¹³⁸

2. EPA and Kinder Morgan's "Direct Hydrological Connection" Standard

The "direct hydrological connection" standard utilized by the Fourth Circuit in *Kinder Morgan* was preferred by EPA prior to April 2019 and rooted in the rules promulgated by the agency. This standard originated from the 1991 Water Quality Amendments and was discussed in the 2001 proposed CAFO rule.¹³⁹

The 2001 proposed CAFO rule also suggests resources NPDES permit writers can use when determining liability under the CWA.¹⁴⁰ It provides some guidelines to determine whether the groundwater applicants are discharging pollutants into has a "direct hydrological connection" with covered surface water.¹⁴¹ It cites criteria used to develop rules for groundwater and injection wells under the Safe Drinking Water Act, which include "[g]eologic and hydrogeologic settings," "[g]round water flow and occurrence," "[t]opographic and geographic features," and "[d]epth to ground water."¹⁴² The guidance also suggests utilizing lithological maps and state and federal geologic surveys, including a document published by EPA entitled "Regional Assessment of

136. *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 936 (6th Cir. 2018); *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436, 444 (6th Cir. 2018).

137. *See Rapanos*, 547 U.S. at 743 (emphasis in original) (quoting 33 U.S.C. §§ 1311(a), 1362(12)(A)).

138. *See Kentucky Waterways*, 905 F.3d at 933; *see also Tennessee Clean Water*, 905 F.3d at 443; *see supra* Part I.A. (discussion about point source to point source conveyance).

139. *See* Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations, 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991) (codified at 40 C.F.R. pt. 131); *see also* National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3016 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412).

140. 66 Fed. Reg. at 3018. Permits are written by permitting authorities that issue NPDES permits to potential applicants. *See* EPA, NPDES PERMIT WRITERS MANUAL at vii, https://www.epa.gov/sites/production/files/2015-09/documents/pwm_2010.pdf/ (last visited Apr. 21, 2019).

141. 66 Fed. Reg. at 3018.

142. *Id.* at 3018–19.

Aquifer Vulnerability and Sensitivity in the Conterminous United States.”¹⁴³ In addition, it suggests using United States Geological Survey (USGS) Hydrologic Landscape Regions, which are a set of maps that contain information about the topography and lithology of watersheds.¹⁴⁴ Because EPA declined to formally adopt the direct hydrological connection standard from the proposed CAFO rule,¹⁴⁵ the CWA’s coverage of hydrologically connected groundwater has been the subject of a long debate.¹⁴⁶

In *Kinder Morgan*, the Fourth Circuit used EPA’s “direct hydrologic connection” standard when evaluating whether or not the CWA covers hydrologically connected groundwater.¹⁴⁷ Consistent with EPA’s interpretation of the standard from the 2008 revised CAFO rule,¹⁴⁸ the court noted that “[t]his determination necessarily is fact-specific.”¹⁴⁹ The court, however, did not discuss any detailed evaluation of the underlying geology of the site, but rather made conclusions based on the distance between the ruptured pipeline and the polluted body of water.¹⁵⁰ In addition, *Kinder Morgan* did not dispute that their ruptured pipeline was the source of the pollution.¹⁵¹ These facts made this situation distinguishable from other cases in which it was unclear whether or not the point source was the cause of pollution.¹⁵²

Although the Sixth Circuit majorities in *Kentucky Waterways* and *Tennessee Clean Water Network*, explicitly rejected the application of the CWA to any hydrologically connected groundwater,¹⁵³ the dissents referred to the

143. *Id.* at 3019 (citing WAYNE A. PETTYJOHN, ET AL., REGIONAL ASSESSMENT OF AQUIFER VULNERABILITY AND SENSITIVITY IN THE CONTERMINOUS UNITED STATES (EPA, 2006)).

144. *Id.* (citing a draft version of David M. Wolock et al., *Delineation and evaluation of hydrologic-landscape regions in the United States using geographic information system tools and multivariate statistical analyses*, ENVIRONMENTAL MANAGEMENT, 2004). Geographic information system (GIS) mapping data can be found at USGS, HYDROLOGIC LANDSCAPE REGIONS OF THE UNITED STATES, <https://water.usgs.gov/GIS/metadata/usgswrd/XML/hlrus.xml> (last visited Apr. 21, 2019).

145. See National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations (CAFOs), 68 Fed. Reg. 7176, 7216 (Feb. 12, 2003) (codified at 40 C.F.R. pts. 122–23, 412).

146. See Hayman, *supra* note 27, at 117–18 (discussing the vagueness of the “direct hydrologic connection” standard and about public comments opposing the standard).

147. *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 651 (4th Cir. 2018).

148. Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,420 (Nov. 20, 2008) (codified at 40 C.F.R. pts. 9, 122, 412) (noting that sites should be evaluated on a “case-by-case basis”).

149. *Kinder Morgan*, 887 F.3d at 651.

150. The pipeline leak was located less than one thousand feet from the polluted surface water. *Id.* at 651–52.

151. *Id.* at 652.

152. *Id.* (discussing *Sierra Club v. El Paso Gold Mines, Inc.*, 421 F.3d 1133, 1150 (10th Cir. 2005) and *Sierra Club v. Abston Constr. Co.*, 620 F.2d 41, 45 (5th Cir. 1980), which concerned debates over contributing causes of pollution due to complicated geology between the point source and body of water).

153. See *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 932–33 (6th Cir. 2018); *Tenn. Clean Water Network v. Tenn. Valley Auth.*, 905 F.3d 436, 443 (6th Cir. 2018).

“direct hydrological connection” standard articulated in *Kinder Morgan*.¹⁵⁴ The dissenting judge, Justice Clay, stated that the CWA should have applied in both of these cases because there was a “direct hydrological connection” between the coal ash pits and nearby navigable waters.¹⁵⁵

Prior to April 2019, EPA also supported the use of the “direct hydrological connection” standard, which it thoroughly discussed in its amicus brief filed in support of the plaintiffs in *Hawai‘i Wildlife*.¹⁵⁶ In its brief, EPA asserted that it “has a longstanding and consistent interpretation that the Clean Water Act may cover discharges of pollutants from point sources to surface water that occur via ground water that has a direct hydrological connection to the surface water.”¹⁵⁷ It further clarified the meaning of the word “direct,” stating that “a pollutant must be able to proceed from the point of injection to the surface water without significant interruption.”¹⁵⁸ Despite these assertions, the Ninth Circuit declined to follow this standard because “it reads two words into the CWA (“direct” and “hydrological”) that are not there.”¹⁵⁹ Instead, in *Hawai‘i Wildlife*, it decided to create its own standard rooted in case law.¹⁶⁰

3. Hawai‘i Wildlife’s “Fairly Traceable” Standard

In *Hawai‘i Wildlife*, the Ninth Circuit departed from the “conduit theory” used by the district court below,¹⁶¹ and held that polluters are liable under the CWA for any discharges into navigable waters “fairly traceable” to the point source.¹⁶² The court held that the County’s wastewater injection wells violated the CWA because:

- (1) the County discharged pollutants from a point source, (2) the pollutants are fairly traceable from the point source to a navigable water such that the discharge is the functional equivalent of a discharge into the navigable water,

154. *Kentucky Waterways*, 905 F.3d at 947 (Clay, J., concurring in part dissenting in part); *Tennessee Clean Water*, 905 F.3d at 454 (Clay, J., dissenting).

155. *Kentucky Waterways*, 905 F.3d at 947; *Tennessee Clean Water*, 905 F.3d at 454.

156. See EPA Amicus Brief, *supra* note 9.

157. *Id.* at 25 (quoting Env’tl. Prot. Agency, Response to Comments – Topic 10 Legal Analysis, 382 (June 30, 2015), https://www.epa.gov/sites/production/files/2015-06/documents/cwr_response_to_comments_10_legal.pdf).

158. See *id.* at 26.

159. *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 n.3 (9th Cir. 2018).

160. *Id.*

161. *Hawai‘i Wildlife Fund v. Cty. of Maui*, 24 F. Supp. 3d 980, 996 (D. Haw. 2014). Before the Ninth Circuit’s decision, the District Court for the District of Hawai‘i’s “conduit theory” was considered a potential new standard for evaluating connected groundwater under the CWA. See Kvien, *supra* note 27, at 987–88; Schiff, *supra* note 123, at 466. This theory references the language in the CWA that states that “conduits” are included in the definition of “point source.” See 33 U.S.C. § 1362(14) (2012). The district court stated that establishing groundwater as a conduit for pollutants may attach liability “even if the groundwater is not itself protected under the Act.” *Hawai‘i Wildlife*, 24 F. Supp. 3d at 998. This is supported by the fact that conduits do not need to be “confined and discrete” in order to be considered a point source according to the language of the CWA. *Id.* at 999.

162. *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018).

and (3) the pollutant levels reaching navigable water are more than de minimis.¹⁶³

The Ninth Circuit derived its “fairly traceable” standard from language in existing case law, which differentiated “between point source and nonpoint source pollution based on whether pollutants can be ‘traced’ or are ‘traceable’ back to a point source.”¹⁶⁴ One of the cases the Ninth Circuit used to create this test was *Trustees for Alaska v. EPA*.¹⁶⁵ In this case, the Ninth Circuit held that pollutants that can be “traced [back] to . . . identifiable point[s] of discharge” “are subject to NPDES regulation, as are all point sources’ under the plain language of the CWA.”¹⁶⁶ The Ninth Circuit also noted that it previously defined nonpoint source pollution as pollution that “is not traceable to any single discrete source” in *Ecological Rights Foundation v. Pacific Gas & Electric Co.*¹⁶⁷

In *Hawai‘i Wildlife*, the Ninth Circuit deemed the pollution traceable because of the results from the tracer dye study, which conclusively demonstrated that pollutants from the two most heavily used underground injection wells were entering the ocean.¹⁶⁸ The court also cited other circuit decisions stating that it is permissible to have intervening land between a point source and a navigable body of water, to support its assertion that the point source does not need to directly add pollutants to navigable waters.¹⁶⁹

Hawai‘i Wildlife had an immediate impact on the issue of hydrologically connected water under the CWA, even before the Sixth Circuit’s decision created a circuit split on the issue. EPA put out a request for comment on the “direct hydrological connection” standard nineteen days after the Ninth Circuit released the decision for the *Hawai‘i Wildlife* case.¹⁷⁰ The main goal of the request for comment was to determine whether EPA should clarify or revise its statements regarding pollutant discharges to groundwater hydrologically connected to navigable waters, given the conflicting court holdings.¹⁷¹ By the end of the comment period on May 21, 2018, EPA had received 58,350 comments on the

163. *Id.*

164. *Id.* at 749 n.3.

165. 749 F.2d 549, 558 (9th Cir. 1984).

166. *Hawai‘i Wildlife*, 886 F.3d at 744 (quoting *Trustees for Alaska*, 749 F.2d 549, 558 (9th Cir. 1984)).

167. *Id.* at 745 (quoting *Ecological Rights Found. v. Pac. Gas & Elec. Co.*, 713 F.3d 502, 508 (9th Cir. 2013)).

168. *Id.* at 745.

169. *Id.* at 747. The Ninth Circuit cites the decisions in *Concerned Area Residents for Environment v. Southview Farm*, F.3d 114, 119 (2d Cir. 1994) (holding that the discharge of manure onto “fields from which the manure directly flows into navigable waters [is a] point source discharge[.]”) and *Sierra Club v. Abston Construction*, F.2d 41, 45 (5th Cir. 1980) (holding that sediment basins are point sources even though the sediment is channeled into navigable waters by gravity and rainwater).

170. *Compare* Clean Water Act Coverage of “Discharge of Pollutants” via a Direct Hydrological Connection to Surface Water, 83 Fed. Reg. 7126 (Feb. 12, 2018) (to be codified at 40 C.F.R. pt. 122), with *Hawai‘i Wildlife*, 886 F.3d at 737.

171. *See generally* 83 Fed. Reg. at 7126 (requesting comment on EPA’s statements regarding pollutant discharge via hydrologic connections to surface water).

subject.¹⁷² The April 2019 Interpretative Statement resulted from this request for comment and marked a shift in EPA's stance on the issue.¹⁷³ Now that the Supreme Court will be hearing *Hawai'i Wildlife*, it is unclear whether or not the strength of hydrologic connection will even matter moving forward. EPA should have acted on this issue earlier since the current guidance is insufficient.

III. THE CURRENT GUIDANCE ON HYDROLOGICALLY CONNECTED GROUNDWATER

EPA and state governments have not provided enough guidance concerning hydrologically connected groundwater. First, the two EPA final rules that have addressed this issue, the Water Quality Amendments and the CAFO rule, did not contain important or helpful details regarding how courts should evaluate the extent of connection between groundwater and surface water required for the CWA to apply. Second, the "direct hydrological connection" standard previously supported by EPA is unclear and difficult to prove. Third, although states are supposed to regulate discharges to groundwater under the CWA, not all states are adequately addressing hydrologically connected groundwater. Although EPA has officially changed its position on the matter, it is questionable whether its new interpretation will be given deference, due to its departure from the precedent which existed when the circuit decisions were made.¹⁷⁴ This Part will discuss the available EPA guidance prior to April 2019, which were regularly referenced in the arguments in the backdrop of these decisions.

A. Previous EPA Guidance

The two main sources of EPA guidance that the *Kinder Morgan* and *Hawai'i Wildlife* petitioners referenced were the 1991 Water Quality Amendments and the proposed CAFO rule.¹⁷⁵ These rules both stated EPA's position on hydrologically connected groundwater (prior to April 2019) but did not provide further details that courts could rely on when making decisions.

The preamble to the Water Quality Amendments mentioned that "directly connected surface waters" are protected under the CWA, but it did not include an explanation of what that term specifically covers.¹⁷⁶ The phrase "direct hydrological connection" was also mentioned in a response to a comment

172. Docket Folder Summary, Clean Water Act Coverage of "Discharges of Pollutants" via a Direct Hydrologic Connection to Surface Water (Feb. 20, 2018), <https://www.regulations.gov/docket?D=EPA-HQ-OW-2018-0063>.

173. See 84 Fed. Reg. at 16,810.

174. See Rodriguez, *supra* note 85.

175. See Amendments to the Water Quality Standards Regulation That Pertain to Standards on Indian Reservations, 56 Fed. Reg. 64,876, 64,892 (Dec. 12, 1991) (codified at 40 C.F.R. pt. 131); National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3016 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412).

176. 56 Fed. Reg. at 64,892.

regarding subsurface flows, but the guidance did not provide any additional information as to what would qualify as a connected subsurface flow.¹⁷⁷

The 2001 proposed CAFO rule contained more information on hydrologically connected groundwater but relied on older case law.¹⁷⁸ It also suggested that NPDES permit writers should refer to older sources of lithological and mapping data to evaluate connectivity.¹⁷⁹ The subsequent versions of the CAFO rule restated EPA's position that a "direct hydrological connection" between surface water and groundwater should be "a factual inquiry, like all point source determinations."¹⁸⁰ The final version of the CAFO rule released in 2008 only stated that EPA will evaluate sites "on a case-by-case basis" and did not mention specifics, which made it difficult to enforce.¹⁸¹

B. The Ambiguity of the Direct Hydrological Connection Standard

Due to the lack of guidance from EPA, there was no clear information about what qualified as a "direct hydrological connection" that would lead to liability under the CWA. In his note, James Hayman, a professional geologist, stated that the "direct hydrological connection" standard from the 2001 proposed CAFO rule was vague and difficult to prove.¹⁸² This wording was a source of concern during the comment period for the original CAFO rule because the "EPA [did] not clearly define the phrase 'direct discharge to surface water via ground water.'"¹⁸³ EPA also failed to establish a clear burden-of-proof requirement for this standard.¹⁸⁴ This implied that the owners of CAFOs would be required to hire professional geologists to evaluate their land and give a professional opinion based on an unclear direct connection standard.¹⁸⁵

It is also difficult to determine the flow of groundwater from the resources suggested by EPA in the proposed CAFO rule. Regional maps describing the topographical and lithological makeup of a region cannot conclusively predict the flow of groundwater.¹⁸⁶ The path of groundwater is difficult to predict

177. *Id.*

178. 66 Fed. Reg. at 3016.

179. *See id.* at 3017–19; *supra* Part II.B.2.

180. *See* 66 Fed. Reg. at 3017.

181. Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the Waterkeeper Decision, 73 Fed. Reg. 70,418, 70,421 (Nov. 20, 2008) (codified at 40 C.F.R. pts. 9, 122, 412).

182. Hayman, *supra* note 27, at 118.

183. *Id.* (quoting U.S. EPA, Response to Comments on the January 2001 Federal Register Notice and Proposed Rule, November 2001 Notice of Data Availability, and July 2002 Notice of Data Availability for Concentrated Animal Feeding Operations, Issues 11 & 17 (unpublished document available at the Office of Water Docket, Rm. B102, EPA West Bldg., 1301 Constitution Ave, Washington, D.C.) at 11-194).

184. *Id.*

185. *Id.* at 118–19.

186. *See* National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed. Reg. 2960, 3019 (proposed Jan. 12, 2001) (codified at 40 C.F.R. pts. 122, 412).

because it does not “follow the most direct route” and may even “travel completely beneath a nearby stream to a more distant point of discharge.”¹⁸⁷ Underground flows are unpredictable in terms of both direction and velocity, and there is no guarantee that groundwater will always flow in the same way.¹⁸⁸

In addition, the word “direct” is undefined in the rule and raises many questions about the extent of connection required for liability under the CWA. The Fourth Circuit in *Kinder Morgan* stated that the “direct hydrological connection” standard is very “fact-specific.”¹⁸⁹ It decided that there was a “direct hydrological connection” in that case because the release was close to navigable water and the source of the pollution was undisputed.¹⁹⁰ This narrow interpretation of the word “direct” makes it unclear whether cases where the source of pollution is disputed—like *Kentucky Waterways*—would fall under the scope of the CWA as well.¹⁹¹

C. State Regulation of Hydrologically Connected Groundwater

One of the most prevalent arguments against extending the CWA to hydrologically connected groundwater is the idea that groundwater should be regulated solely by states.¹⁹² However, it is unclear whether or not states are doing their job. This federalism argument is rooted in the idea that the federal government does not have authority over anything that Congress has not expressly granted it.¹⁹³ One of the largest pieces of the CWA that Congress left to the states is how to handle nonpoint source pollution such as polluted groundwater.¹⁹⁴ However, groundwater governance across states is fragmented and inconsistent,¹⁹⁵ which creates a problem especially in the context of protecting hydrologically connected groundwater from pollution.

Consistent with the federalism argument, all fifty states have enacted some type of legislation relating to groundwater policies;¹⁹⁶ however, not all state policies are created equal. In their study on different state groundwater policies,

187. Hayman, *supra* note 27, at 122–23.

188. *Id.* at 123.

189. *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 651–52 (4th Cir. 2018).

190. *Id.*

191. In *Kentucky Waterways*, the plaintiffs could not conclusively establish that there was a connection between the coal ash pits and nearby waterbodies. See *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 933 (6th Cir. 2018) (the tracer dye study did establish a weak connection but it did not provide enough data to consider the coal ash pond a point source).

192. This holds especially true in the Fifth Circuit. In *Exxon Corporation v. Train*, the Fifth Circuit reviewed the legislative history of the CWA and concluded that “Congress did not mean to substitute federal authority over groundwaters for state authority.” 554 F.2d 1310, 1322 (5th Cir. 1977); the court in *Rice v. Harken Exploration Co.* agreed with this interpretation of the CWA. 250 F.3d 264, 269 (5th Cir. 2001). See *supra* section I.B. for discussion of the legislative history of the CWA.

193. Schiff, *supra* note 123, at 456.

194. *Id.* at 459.

195. Sharon B. Megdal et al., *Groundwater Governance in the United States: Common Priorities and Challenges*, 53 GROUNDWATER 677, 681–82 (2014).

196. Kvien, *supra* note 27, at 991–92.

Megdal and others surveyed state agency representatives from each state plus the District of Columbia about their jurisdiction's groundwater governance framework and priorities for groundwater governance.¹⁹⁷ Some of the most notable findings from this survey were that not all states have statutes explicitly protecting groundwater and that only half of the state agencies have enough capacity to enforce groundwater laws.¹⁹⁸ Only half of the respondents indicated that their state law recognizes that groundwater and surface water are connected.¹⁹⁹ Therefore, it is not clear whether polluters that release pollutants to groundwater with a hydrological connection to surface water would be held responsible under each state's law. These findings seem contrary to the fact that 45 percent of respondents noted that "water quality and contamination" were priorities for their state water agency.²⁰⁰ The study concluded that in order to better regulate and protect hydrologically connected groundwater, there needs to be a better balance between federal and state authorities.²⁰¹ This should include bringing hydrologically connected groundwater under the CWA.

Although EPA's former guidance was outdated and unclear, it still effectuated the purpose of the CWA better than EPA's April 2019 interpretation, which claims that hydrologically connected groundwater is not covered by the CWA at all. Furthermore, not all states—which are supposed to have jurisdiction over the protection of groundwater—have even considered the issue of hydrologically connected groundwater. In retrospect, EPA should have promulgated a clear rule that hydrologically connected groundwater is covered by the CWA years ago before the shift in administration. Now, however, it is up to the Supreme Court to decide the relationship between the CWA and connected waters.

IV. A PROPOSED RULE FOR HYDROLOGICALLY CONNECTED GROUNDWATER

Environmental groups should have lobbied the EPA to promulgate a rule stating that hydrologically connected groundwater is covered by the CWA during a more environmentally-friendly administration. Now, even the appellants are concerned that the Supreme Court's judgment could negatively impact the CWA moving forward.²⁰² Such a rule would have prevented the current circuit split, cleared up ambiguities created by the "direct hydrological connection" standard, closed loopholes in the CWA's coverage, and better protected waterways.

If there was previously a clear rule on this issue, courts would have had to defer to EPA's interpretation under the Supreme Court's two-step *Chevron* test for agency deference: (1) "whether Congress has directly spoken to the precise

197. Megdal et al., *supra* note 195, at 679.

198. *See id.* at 680.

199. *See id.* at 679 (tbl. 1).

200. *See id.* at 681.

201. *See id.* at 683.

202. *See Rodriguez, Maui County Weighing Settlement, supra* note 15.

question at issue,” and (2) “whether the agency’s answer is based on a permissible construction of the statute.”²⁰³ In the case of hydrologically connected groundwater, Congress has not directly spoken on hydrologically connected groundwater because it is not mentioned in the CWA.²⁰⁴ Furthermore, this proposed interpretation of the CWA is reasonable given the purpose of the statute—hydrologically connected groundwater directly impacts the “chemical, physical, and biological integrity of the Nation’s waters.”²⁰⁵

Regardless of what could have been done, EPA is still planning on promulgating a rule on this issue based on the Supreme Court’s decision.²⁰⁶ If the Supreme Court affirms the CWA question in *Hawai’i Wildlife*, this rule should provide both legal and scientific guidelines to determine the extent of connectivity required. This rule should also provide guidance for polluters and NPDES permit writers when determining whether or not a NPDES permit is needed, as well as help courts decide whether a release to groundwater is covered by the CWA.

Similar to the proposed 2001 CAFO rule, this theoretical rule would have to undergo the notice-and-comment rulemaking process.²⁰⁷ However, EPA could take lessons learned from the proposed 2001 CAFO rule to avoid receiving the same negative comments. One of the main challenges to the guidance on hydrologically connected groundwater in the CAFO rule was that EPA did not have jurisdiction under the CWA because groundwater governance is left up to the states.²⁰⁸ Now, EPA could rebut those presumptions because the final CAFO rule and the Second Circuit’s holding in *Waterkeeper* have affirmed EPA’s jurisdiction over hydrologically connected groundwater.²⁰⁹ EPA could also apply Justice Scalia’s plurality decision in *Rapanos* to demonstrate its jurisdiction as well.²¹⁰ The other two main challenges—the definition of hydrologically connected water and how to prove connection²¹¹—are addressed below.

203. See *Chevron, U.S.A., Inc. v. Nat’l Res. Def. Council, Inc.*, 467 U.S. 837, 842–43 (1984).

204. See *Water Pollution Control Legislation - 1971 (Proposed Amendments to Existing Legislation): Hearings before the Comm. on Pub. Works*, 92d Cong. 230 (1971).

205. 33 U.S.C. § 1251(a) (2012). EPA also believes that an official EPA interpretation would be valid under the *Chevron* test for hydrologically connected groundwater. See EPA Amicus Brief, *supra* note 9, at 24.

206. See 84 Fed. Reg. at 16,810, 16,812 n.1.

207. See 5 U.S.C. § 553 (2012); Hayman, *supra* note 27, at 113. Under notice-and-comment rulemaking, the agency must publish a notice of rulemaking in the Federal Register; the public must be given an opportunity to participate by commenting on the rule; and the agency must publish a “concise general statement of their basis and purpose” after incorporating the comments. 5 U.S.C. § 553(c).

208. See Hayman, *supra* note 27, at 115–17.

209. See Revised National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines for Concentrated Animal Feeding Operations in Response to the *Waterkeeper* Decision, 73 Fed. Reg. 70,418, 70,421 (Nov. 20, 2008) (codified at 40 C.F.R. pts. 9, 122, 412).

210. See *supra* note 134 and accompanying text.

211. See Hayman, *supra* note 27, at 117–20.

This theoretical rule should also adopt the legal reasoning behind the three part “fairly traceable” standard from *Hawai‘i Wildlife* instead of continuing to use the vague “direct hydrological connection” standard. Under the “fairly traceable” standard, courts and polluters would evaluate whether the pollutants (1) originate from a point source, (2) are “fairly traceable from the point source to a navigable water such that the discharge is the functional equivalent of a discharge into the navigable water,” and (3) reach navigable waters at a more than *de minimis* concentration.²¹² By using this standard, EPA will make clear that passing pollution through groundwater, with a sufficient hydrological connection to surface water, does not allow polluters to circumvent the NPDES permitting process for point sources.²¹³

EPA should caution against making bright line rules,²¹⁴ but if *Hawai‘i Wildlife* is affirmed, it would be helpful to have a rule concerning the extent of connection required for hydrologically connected groundwater to be covered by the CWA. This theoretical guidance should suggest scientific considerations for determining what is “fairly traceable,” better define what constitutes a “more than *de minimis*” amount, and address the issue of beneficial groundwater and storm water projects that might impact hydrologically connected groundwater.

A. Tracer Dye Studies to Determine Traceability

This theoretical rule should include guidance on the types of scientific testing to use in situations where there is debate over either the source of pollution or the level of connection between the point source and navigable water. Although testing nearby surface waters for pollutants discharged by the point source is a generally accepted practice, these tests alone may not always be enough to convince parties to concede a sufficient hydrologic connection.²¹⁵ In such cases, tracer dye studies are a relatively cost-effective and widely accepted option for tracking the flow of groundwater.²¹⁶ These studies are usually carried out in response to notices of CWA or permit violations from state environmental or water agencies but can also be compelled by EPA and federal and state agencies.²¹⁷

212. See *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018).

213. This standard is based in case law differentiating between point source and nonpoint source pollution. See *id.* at 749 n.3.

214. Although bright line rules can increase predictability and ease administrative burdens, there is the potential for a lack of redress in situations that do not meet the guidelines. See generally Kvien, *supra* note 27, at 990 (arguing against creating scientific bright line standards for groundwater connectivity).

215. See, e.g., *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 931 (6th Cir. 2018) (discussing using selenium testing to determine the presence of pollution); *Hawai‘i Wildlife* 24 F. Supp. 3d at 984–85 (noting the various debates between EPA and the County prior to the tracer dye study).

216. George F. Arsnow et al., *Dye Tracer Study—Tried and True Method Yields Surprising Results*, 15 PROC. OF THE ANN. INT’L CONF. ON SOILS, SEDIMENTS, WATER AND ENERGY 337, 338 (2010).

217. See, e.g., Brief of Appellants Kentucky Waterways and Sierra Club at 9–10, *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925 (6th Cir. 2018) (No. 5:17-292-DCR) (studies were compelled after

Using scientific studies to determine whether or not pollutants are “fairly traceable” to a point source would help courts and polluters understand how the disposal of pollutants underground affects navigable surface waters. Having guidance on scientific testing establishes clear expectations that polluters should carefully evaluate the underlying geology of the area²¹⁸ and consider either dye testing or NPDES permits for any proposed projects that involve underground disposal of pollutants near navigable bodies of water.

1. *Tracer Dyes are a Widely Accepted Practice for Tracking Groundwater*

Tracking groundwater using tracer dyes is a widely accepted practice that geologists have used for at least a century to understand complex groundwater patterns.²¹⁹ This type of testing is performed by adding tracer dye to a point source, such as an injection well, and then tracking the outflow of dye by taking samples from various surrounding locations.²²⁰ Samples can be collected either manually or with collection devices from both surface waters and groundwater monitoring wells.²²¹ Samples are collected from a wide range of areas in several rounds to determine the size of the tracer dye plume and the rate at which the groundwater from the point source is reaching the nearby surface water.²²² Scientists analyze the samples by exposing the sample to light with a dye-specific wavelength then measuring the wavelengths of light emitted by the sample in return.²²³ If the return wavelengths of light match those associated with the dye, the sample is deemed positive.²²⁴

There are many techniques and types of dyes suitable for various types of geological settings.²²⁵ In doing this type of testing, it is important for experts to choose dyes that will not interfere with or misrepresent the pollutant at issue.²²⁶ The fluorescent dye typically used in groundwater studies is nontoxic, detectable at very low concentrations, stable, and tends to remain dissolved in the solution.²²⁷ Tracer dye studies are also relatively cost-effective and the dye itself

permit violation); GLENN ET AL., *supra* note 1, at ES-1 (EPA and the State of Hawai‘i compelled study in *Hawai‘i Wildlife*).

218. For example, karst formations are particularly vulnerable for the transmission of pollutants underground. *See* Hayman, *supra* note 27, at 117. Other types of underlying geology are not as prone to conveying pollutants. *See id.* at 124.

219. Arsnow et al., *supra* note 216, at 338.

220. *See id.* at 343–44.

221. *See* GLENN ET AL., *supra* note 1, at ES-16 (explaining how samples were collected for the LWTF tracer dye study).

222. *See id.* at ES-15–16.

223. *See id.* at 43.

224. *See id.*

225. *See id.* at 4-2 (describing the different types of tracer options considered for the study of the underground injection wells). *See also* WINTER ET AL., *supra* note 110, at 30–31 (describing how environmental tracers can be used to determine groundwater interactions with surface water).

226. *See* GLENN ET AL., *supra* note 1, at 4-2 (noting that wastewater pollutants may produce the same wavelengths of light as certain dyes).

227. *Id.*

is relatively economical and easy to obtain.²²⁸ Although commenters may argue that testing is expensive and cost-prohibitive, they should take into account that permanently impacting connected bodies of water with a hydrological connection could be even more costly and potentially harmful. In addition, having clear testing standards would also encourage potential groundwater polluters to do their due diligence about the area that they will be discharging pollutants to.

2. Courts Have Generally Treated Tracer Dye Tests Favorably

In cases where the source and amount of pollution reaching navigable waterways is in dispute, tracer dye tests can be used to clarify the behavior of the groundwater at issue. In *Sierra Club v. El Paso Gold Mines, Inc.*, the Tenth Circuit held that a mining shaft can be a point source if there is a sufficient hydrological connection to navigable waters, but concluded that in the case at bar, there was an issue of material fact on whether or not the pollution actually came from the mine shaft.²²⁹ The court noted that “reliable measuring devices and other scientific tools have never been used to determine the flow of water” at the site and suggested that a “dye tracing test” would have been more persuasive.²³⁰ The counsel for plaintiffs acknowledged at oral argument that using a dye test could have established a connection with a “high degree of certainty” as well.²³¹ Expert testimony by a hired geologist, environmental engineer, and aqueous geochemist was not sufficient to prove that the contaminants from the mine shaft were entering surface waters.²³² The only sampling in this case had been two samples taken at the mine shaft and more frequent sampling at the portal that lead to the creek; however, these samples did not prove a hydrological connection.²³³

In *Hawai‘i Wildlife*, the tracer dye study was the main reason why there was no dispute over the connection between the groundwater beneath the LWTF and the surface water at the shoreline.²³⁴ The study estimated that “64 [percent] of the dye injected into Wells 3 and 4 will [eventually be] discharged at the submarine spring areas,” which implied that 64 percent of the treated wastewater will find its way to the ocean.²³⁵ The study also conclusively proved that there was a hydrological connection between Wells 3 and 4 and the ocean.²³⁶ Although the study did not detect dye from Wells 1 and 2, which received less than 20

228. See *id.* at 4-3; Arsnow et al., *supra* note 216, at 337.

229. *Sierra Club v. El Paso Gold Mines, Inc.*, 421 F.3d 1133, 1146-49 (10th Cir. 2005).

230. *Id.* at 1150.

231. *Id.* at 1150 n.9.

232. See *id.* at 1146-48.

233. *Id.* at 1137 n.2, 1149 n.8.

234. *Hawai‘i Wildlife Fund v. Cty. of Maui*, 24 F. Supp. 3d 980, 984 (D. Haw. 2014).

235. *Id.* (quoting GLENN ET AL., *supra* note 1, at ES-3).

236. *Id.*

percent of the treated wastewater combined,²³⁷ the County of Maui conceded that pollutants in those two wells were also entering the ocean.²³⁸

The only circuit court to question the validity of a tracer dye test was the Sixth Circuit in *Kentucky Waterways*. However, the court only used the results from the dye test to refute the plaintiffs' argument that groundwater can be considered a point source and not their argument that a hydrological connection exists.²³⁹ The court relied heavily on the CWA's definition of "point source"—a "discernible, confined and discrete conveyance"—and noted that that "dye traces can roughly and occasionally track the flow of groundwater," but "do not render groundwater 'discernible.'"²⁴⁰ The court asserted that groundwater cannot be a point source because one cannot "discern its precise contours as can be done with traditional point sources like pipes, ditches, or tunnels."²⁴¹ The plaintiffs' expert also noted that he only recovered dye from one injection location after injecting dyes at three different locations in the Main Ash Pond, the alleged point source.²⁴² Despite the expert's findings, the plaintiffs noted that "Citizen Groups identified serious deficiencies in these studies" and that there are likely underground connections that the studies did not find.²⁴³ The defendant also failed to include any new tracer dye studies in response to a Notice of Violation issued by Kentucky Energy and Environment in 2017.²⁴⁴ Because of these alleged deficiencies, it is unclear whether a proper study with clearer results would have caused the court to think differently about tracer dye studies.

B. Guidelines for a More Than *de Minimis* Amount

If EPA were to adopt the Ninth Circuit's test, it would be important to set guidelines for what would be considered a "more than *de minimis*" amount of pollution since the Ninth Circuit decided not to provide any guidance on this matter.²⁴⁵ Although it was clear that both the releases in *Hawai'i Wildlife* and *Kinder Morgan* entered navigable waters at a more than *de minimis* amount, it is important to provide more guidance that would help courts determine borderline cases. The guidance should suggest that courts and polluters look to the time pollutants take to travel from the point source to the navigable body of water, as

237. See *id.* at 998 (noting that "wells 3 and 4 'receive more than 80 percent of the treated wastewater'").

238. *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 743 (9th Cir. 2018).

239. See *Ky. Waterways All. v. Ky. Utils. Co.*, 905 F.3d 925, 933 (6th Cir. 2018). This point source theory has been accepted by district courts and the Tenth Circuit. See, e.g., *Wash. Wilderness Coal. v. Hecla Mining Co.*, 870 F. Supp. 983, 989 (E.D. Wash. 1994); *Sierra Club v. El Paso Gold Mines*, 421 F.3d 1133, 1146 (10th Cir. 2005).

240. *Kentucky Waterways*, 905 F.3d at 933 (quoting 33 U.S.C. § 1362(14) (2012)).

241. *Id.*

242. *Id.*

243. Brief of appellants *Kentucky Waterways*, *supra* note 217, at 25.

244. *Id.*

245. See *Hawai'i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 749 (9th Cir. 2018).

well as the ecological and visual impact of pollutants on the navigable body of water.

The guidance should state that pollutants must reach surface water within a reasonable timeframe to be considered present at a more than *de minimis* amount. To determine this, courts can look at either the results from the tracer dye studies or from groundwater modeling. In *Greater Yellowstone Coalition v. Larson*, the court upheld EPA's ruling that there was not a sufficient hydrologic connection because scientific groundwater modeling predicted that pollutants would take 60 to 420 years to arrive at the surface water in peak concentrations.²⁴⁶ In contrast, the Lahaina Tracer Dye study concluded that the peak concentration of the dye would arrive at the shoreline nine or ten months after injection.²⁴⁷ Although courts have not determined what a reasonable amount of time is to be covered by the CWA, the rule should provide some guidelines on the amount of time based on expert opinions.

The rule should also state that any significant ecological or visual changes of the affected surface waters as a result of pollution should weigh heavily in determining the extent of pollution. In *Hawai'i Wildlife*, the wastewater released from the underground injection wells were conclusively related to significant ecological changes, including warmer than usual waters and algal blooms along the coast.²⁴⁸ In *Kinder Morgan*, local residents "discovered dead plants, a petroleum odor, and pools of gasoline" around the ruptured pipeline.²⁴⁹ In contrast, in *Greater Yellowstone Coalition v. Larson*, models estimated that the selenium released into the groundwater would not be above water quality standard levels if it reached surface water, and that there would be no demonstrable impact.²⁵⁰ Therefore, there was not a significant enough impact to establish an enforceable connection.²⁵¹ Although there does not need to be a bright line standard for what constitutes a "more than *de minimis* amount" of pollution, EPA should state that time and ecological impact should be considered when the source and amount of pollution is disputed.

C. Limitations for Beneficial Water Reuse Facilities

A major source of pushback against implementing a hydrological connection standard would come from the rule's potential effects on beneficial water treatment and management projects. In areas impacted by drought, it is becoming increasingly important to find ways to reuse fresh water by recycling water and recharging groundwater.²⁵² Counties are concerned that this type of

246. 641 F. Supp. 2d 1120, 1139 (D. Idaho 2009).

247. GLENN ET AL., *supra* note 1, at ES-3.

248. *Id.* at ES-5.

249. *Upstate Forever v. Kinder Morgan Energy Partners*, 887 F.3d 637, 643 (4th Cir. 2018).

250. *Greater Yellowstone*, 641 F. Supp. 2d at 1139.

251. *Id.* at 1139.

252. Amena Saiyid, *Permitting Groundwater Could Affect Reuse Projects*, BLOOMBERG ENVIRONMENT (May 23, 2016), <https://news.bloombergenvironment.com/environment-and-energy/>

standard could impact green infrastructure projects and groundwater recharge projects.²⁵³ To keep these beneficial projects, EPA should have exempted beneficial water treatment and reuse activities from the scope of hydrologically connected waters covered by the CWA, unless the project is reasonably expected to pose a significant risk to nearby navigable waters. These types of facilities are extremely beneficial to communities and have a low likelihood of causing significant environmental damage.²⁵⁴

Water agencies that are typically in favor of protecting surface water bodies—like the Association of California Water Agencies—have generally opposed the *Hawai‘i Wildlife* holding.²⁵⁵ They are concerned that imposing CWA liability for hydrologically connected groundwater could potentially stymie beneficial water recycling projects, storm water management and recharge projects, and constructed wetlands.²⁵⁶ The Association of California Water Agencies and like groups claim that adding additional NPDES permitting requirements or considerations to these beneficial facilities will further complicate the permitting process and discourage the development of beneficial water reuse projects in drought-prone areas.²⁵⁷ It also notes that many of these facilities have already been built and some have already obtained NPDES permits for surface discharges but not groundwater discharges.²⁵⁸ A consortium of water agencies similarly voiced their concerns about how the “fairly traceable” standard would apply to beneficial groundwater reuse projects, aging sewage facilities, and storm water management projects in an amicus brief to the County of Maui’s petition for certiorari.²⁵⁹

Because these types of water reuse and reclamation facilities greatly benefit communities, they should not be subject to any additional permitting or investigations unless studies show a significant amount of risk of harming a fragile ecosystem. In *Hawai‘i Wildlife*, the LWTF provided a beneficial service for the local area. However, it was situated next to a sensitive coral reef habitat that would be greatly harmed by algal blooms caused by large amounts of organic matter.²⁶⁰ The water injected into the wells was also not treated to the highest standards and was not suitable to be sold to customers for irrigation.²⁶¹ In

permitting-groundwater-could-affect-reuse-projects?context=article-related.

253. *Id.*

254. See Amici Curiae Brief of the Ass’n of Cal. Water Agencies et al. at *22–*23, *Hawai‘i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737 (9th Cir. 2018) (No. 18-260) [hereinafter ACWA Brief].

255. See generally *id.*

256. Ass’n of Ca. Water Agencies, Comment Letter on U.S. Environmental Protection Agency Request for Comment on Clean Water Act Coverage of “Discharges of Pollutants” via a Direct Hydrologic Connection to Surface Water at 1 (May 21, 2018).

257. *Id.* at 2.

258. *Id.* at 5.

259. See generally ACWA Brief, *supra* note 254 (voicing concerns regarding “fairly traceable” standard).

260. See HAWAI‘I DIVISION OF AQUATIC RESOURCES, STATUS OF MAUI’S CORAL REEFS, <https://dlnr.hawaii.gov/dar/files/2014/04/MauiReefDeclines.pdf>.

261. GLENN ET AL., *supra* note 1, at ES-4.

addition, before the facility was even built, the County of Maui knew that disposing of effluent directly offshore would be “too harmful.”²⁶²

Although applicants considering developing beneficial groundwater projects should consider risks to surface waters, they should not be required to conduct extensive studies unless there is a significant amount of risk associated with the facility. Additionally, any type of water treatment facility that might release harmful bacteria to nearby surface water should also be required to treat all of its effluent wastewater to the highest standard.²⁶³

CONCLUSION

In order to have better effectuated the purpose of the CWA, environmental groups should have lobbied the EPA to promulgate a rule affirming the CWA’s applicability to hydrologically connected groundwater during an environmentally-friendly administration. Because previous rules did not contain scientific and legal guidance on how to evaluate the extent of connection, courts were left to decide this important issue.²⁶⁴ This lack of clear guidance has ultimately left this question up to the Supreme Court.

Regardless of what could have been done, the Supreme Court will evaluate the applicability of the CWA to hydrologically connected groundwater when it hears *Hawai’i Wildlife* in the fall of 2019. If the Supreme Court does find in favor of the plaintiff-appellants, it would be beneficial for an agency with scientific expertise to provide more guidance about the intricacies of determining what is required for a sufficient hydrological connection under the CWA. Having better guidance on the applicability of the CWA to groundwater connected to surface water would better effectuate the purpose of the CWA and prevent polluters from taking advantage of this loophole. If the Court overturns the Ninth Circuit’s decision, it will be up to states to play a bigger role in regulating discharges to hydrologically connected groundwater. The Supreme Court taking this case will hopefully bring more attention to this issue and encourage states to act.

This debate over hydrologically connected groundwater poses the question of whether there are other loopholes in environmental statutes that EPA has left to courts to interpret. It also demonstrates the power of the political climate over agencies’ viewpoints.²⁶⁵ In order to buffer environmental statutes against changing political tides, environmental groups should focus on identifying major gaps in these statutes. They should then lobby agencies to use their expertise and rulemaking power to close these gaps during favorable political times. The

262. *Hawai’i Wildlife Fund v. Cty. of Maui*, 886 F.3d 737, 742 (9th Cir. 2018).

263. Grade R-1 filtered and disinfected wastewater is the highest standard in Hawai’i, California grades its water on a case-by-case basis. See EPA, GUIDELINES FOR WATER REUSE (2012) at 5-40–41.

264. See *Kvien supra* note 27, at 1000 (list of cases dating back to the 1970s that have addressed this issue).

265. See *Rodriguez, supra* note 85 (quoting general counsel at an environmental group who believes that “the [C]ourt should be highly skeptical of” the April 2019 interpretative statement because it is unclear “whether this is an earnest legal interpretation or just a change in policy driven by different interests”).

applicability of the CWA to hydrologically connected water has been an issue for decades.²⁶⁶ This has ultimately cumulated in four cases concerning hydrologically connected groundwater being heard by circuit courts in 2018 alone.²⁶⁷ What new environmental issue will arise that could have been resolved through early action?

266. *Id.*

267. *See supra* Introduction.

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