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USING HGM ANALYSIS TO AGGREGATE WETLANDS AS "SIMILARLY SITUATED" UNDER THE *RAPANOS* "SIGNIFICANT NEXUS" TEST

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Abstract: Wetlands are vital to the health of the nation's waterways. Even small, geographically isolated wetlands can perform important functions that benefit their surrounding ecosystem. Despite the important role of smaller wetlands, the federal Clean Water Act (CWA) protection of these areas is limited to those wetlands that satisfy legal tests limited by the Commerce Clause of the Constitution. The main test to establish jurisdiction—the "significant nexus" test—relies on a connection between a wetland and a navigable-in-fact waterway. Smaller wetlands, however, may not each have individual connections that are sufficient to satisfy the significant nexus test. When wetlands are "similarly situated," therefore, the individual effects of each wetland may be aggregated to assess the connection to a navigable-in-fact waterway. This Note proposes that the hydrogeomorphic (HGM) classification system, which is already used to assess wetland functions and values, be used to establish when wetlands are similarly situated. Using HGM classification this way is consistent with the legislative purpose of the CWA and Supreme Court precedent in *United States v. Rapanos*, would improve the efficiency of CWA jurisdictional determinations, and would allow small, geographically isolated wetlands to fall under the CWA's protections.

INTRODUCTION

The wetlands of the Chesapeake Bay (the "Bay") watershed are essential to improving the quality of the Bay.[1] On the State of the Bay Report, which measures the health of the Bay on a scale from one to 100, the Bay received a score of thirty-two in 2012.[2] Though the Bay's score did improve one point

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[1] Brief for The Chesapeake Bay Foundation as Amici Curiae Supporting Respondents at 10–12, Rapanos v. United States, 547 U. S. 715 (2006) (Nos. 04-1034, 04-1384).

[2] CHESAPEAKE BAY FOUND., 2012 STATE OF THE BAY 2 (2012), *available at* http://www.cbf.org/about-the-bay/state-of-the-bay/2012-report, *archived at* http://perma.cc/3FSG-ZRA8; *Nitrogen and Phosphorus*, CHESAPEAKE BAY FOUND., http://www.cbf.org/about-the-bay/issues/dead-zones/nitrogen-phosphorus (last visited Oct. 17, 2014), *archived at* http://perma.cc/4YG8-FJ5L.

from 2010,[3] it is far from the pristine quality of the 1600s that would have earned a perfect 100 today.[4] The total score presented in the report includes scores for "pollution," "habitat," and "fisheries," which are each further broken down into smaller groups.[5] The subcategories nitrogen and phosphorus received particularly low scores, earning F and D grades respectively for scores of sixteen and twenty-seven.[6] Under the "habitat" category, the wetlands subgroup received a C+ grade, indicating "fair" quality at a score of forty-two.[7] Improving wetland quality could increase not only the wetlands score, but also the scores of other subgroups, because wetlands can retain potentially damaging nutrients that would otherwise substantially diminish water quality.[8]

Studies conducted by the Chesapeake Bay Program dating back to the 1970s have indicated that the environmental quality of the Bay has deteriorated due to excessive nitrogen and phosphorus from agriculture and sewage.[9] The excess of these chemicals in the water initiates a process known as eutrophication, during which the over-saturation of nutrients stimulates plant growth.[10] The growing plants diminish the oxygen levels in the water, and create "dead zones" of low biodiversity.[11] If the wetlands in the area retained more eutroph-

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[3] CHESAPEAKE BAY FOUND., *supra* note 2, at 2.

[4] *See id.*; *Nitrogen and Phosphorus*, *supra* note 2.

[5] CHESAPEAKE BAY FOUND., *supra* note 2, at 3. The subgroups within each category are: nitrogen/phosphorus, dissolved oxygen, water clarity, and toxics within pollution; forested buffers, underwater grasses, wetlands, and resource lands within habitat; and rockfish, oysters, crabs, and shad within fisheries. *Id.*

[6] *Id.*

[7] *Id.*

[8] *See* Robin Kundis Craig, *Justice Kennedy and Ecosystem Services: A Functional Approach to Clean Water Act Jurisdiction After* Rapanos, 38 ENVTL. L. 101, 108 (2008). Because wetlands can effectively sequester and retain nutrients, such as nitrogen and phosphorus, the low scores in the nitrogen/phosphorus category could be improved by improving wetlands' ability to retain those nutrients and prevent their entry into downstream waterways. *See id.* The dissolved oxygen score could also increase because the processes leading to diminished oxygen levels—eutrophication—could be prevented. *See Chesapeake Bay Monitoring*, MD. DEP'T OF NATURAL RES., http://www.dnr.state.md.us/bay/monitoring/mon_mngmt_actions/chapter2.html (last visited Sept. 27, 2014), *archived at* http://perma.cc/9UP8-ARJS.

[9] *Chesapeake Bay*, U.S. ENVTL. PROT. AGENCY, http://www.epa.gov/oaqps001/gr8water/xbrochure/chesapea.html (last updated Jul. 22, 2011), *archived at* http://perma.cc/F7NC-LVD6.

[10] *Chesapeake Bay Monitoring*, *supra* note 8. When plant matter inundates an aquatic ecosystem, a layer of algae inhibits access to sunlight for plants below the surface, and organisms that rely on these plants for food cannot survive. *Id.* When the algae die, bacteria decompose it and consume high levels of oxygen in the water. *Chesapeake Bay*, *supra* note 9. With depleted oxygen levels, fewer organisms can survive in the aquatic ecosystem. *Chesapeake Bay Monitoring*, *supra* note 10.

[11] *Nitrogen and Phosphorus*, *supra* note 2; *Chesapeake Bay Monitoring*, *supra* note 10.

ication-stimulating nutrients, the process could be avoided, resulting in a healthier watershed.[12]

The Bay has a watershed of close to 64,000 square miles, making it the largest estuary in the contiguous United States.[13] Because of the land-to-water ratio of fourteen-to-one—larger than that of any other coastal body of water in the world—activities on the land draining into the Bay have a significant impact on the health of the water and wetlands.[14] The 1500 square miles of wetlands within the Chesapeake Bay watershed[15] serve a variety of crucial functions for the Bay, including providing habitat, filtering and processing waste, and controlling erosion and flooding.[16] The degradation of the wetlands' health, however, inhibits their ability to provide these functions, thereby weakening their benefit to the Bay's overall health.[17]

Unfortunately, protecting wetlands is often challenging because they are highly susceptible to the effects of changes in water flow and pollution.[18] Additionally, a historical belief that wetlands caused disease and housed monstrous creatures spurred destruction of these ecosystems in the mid-nineteenth century.[19] Pressures from increasing human populations along the coast be-

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[12] *See* Craig, *supra* note 8, at 108 (explaining wetlands' important function of retaining phosphorus, nitrogen, and sediments); *Chesapeake Bay Monitoring*, *supra* note 10 (explaining the series of consequences resulting from excess nutrients in an aquatic ecosystem); *see also Wetlands*, CHESAPEAKE BAY PROGRAM, http://www.chesapeakebay.net/issues/issue/wetlands#inline (last visited Oct. 17, 2014), *archived at* http://perma.cc/PCW3-GAEU (explaining the importance of wetlands to the health of Chesapeake Bay).

[13] *Chesapeake Bay*, *supra* note 9. A watershed is the area of land that drains into the same body of water. *What Is a Watershed?*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/type/watersheds/whatis.cfm (last updated Mar. 6, 2012), *archived at* http://perma.cc/M6DX-MGMV. An estuary is an area where freshwater enters the salt water in the ocean and the land transitions into the sea. *The Estuary System*, CHESAPEAKE BAY PROGRAM, http://www.chesapeakebay.net/discover/bayecosystem/estuarysystem (last visited Oct. 24, 2014), *archived at* http://perma.cc/J2R5-VR8A.

[14] *The Chesapeake Bay Watershed*, CHESAPEAKE BAY PROGRAM, http://www.chesapeakebay.net/discover/baywatershed (last visited Oct. 17, 2014), *archived at* http://perma.cc/6M2B-UBC9.

[15] *Chesapeake Bay*, *supra* note 9.

[16] WILLIAM L. WANT, LAW OF WETLANDS REGULATION § 2:3 (2013); *Wetlands*, CHESAPEAKE BAY PROGRAM, *supra* note 12.

[17] *See Protecting Our Wetlands*, U.S. FISH & WILDLIFE SERV. CHESAPEAKE BAY FIELD OFFICE, http://www.fws.gov/chesapeakebay/Wetprotect.htm (last visited Oct 17, 2014), *archived at* http://perma.cc/9RVQ-H6SL; *The Value of Wetlands*, U.S. FISH & WILDLIFE SERV. CHESAPEAKE BAY FIELD OFFICE, http://www.fws.gov/chesapeakebay/wetvalue.htm (last visited Oct. 17, 2014), *archived at* http://perma.cc/G8Z4-MJSV.

[18] *See Wetlands*, U.S. NAT'L OCEANIC & ATMOSPHERIC ADMIN., http://chesapeakebay.noaa.gov/wetlands/wetlands (last visited Oct. 17, 2014), *archived at* http://perma.cc/F8SG-P9Y2.

[19] THEDA BRADDOCK, WETLANDS: AN INTRODUCTION TO ECOLOGY, THE LAW, AND PERMITTING 6 (2d ed. 2007); WANT, *supra* note 16, § 2:6. Drainage and filling of wetlands was made into a national policy through the Swamp Lands Acts of 1849, 1850, and 1860. Swamp Lands Act, ch. 84, 9 Stat. 519 (1850); WANT, *supra* note 16, § 2:6.

tween the 1700s and present-day resulted in the loss of more than sixty percent of wetlands in the Bay alone.[20] Today, however, wetlands are much more highly valued, both ecologically and societally, and benefit from federal legal protection.[21]

Federal protection of wetlands arises from the Clean Water Act (CWA), which gives the U.S. Army Corps of Engineers (the "Corps") the authority to regulate construction activities that discharge materials into "the waters of the United States."[22] The jurisdictional restriction effected by the "waters of the United States" language, which stems from the interstate commerce clause, has been a source of great confusion for decades.[23] The term includes two categories of waters: those that would traditionally be considered navigable and directly affecting interstate commerce, and the tributaries of, and wetlands adjacent to, those waters or their tributaries.[24] A case-specific analysis must be undertaken to establish whether seemingly isolated wetlands fall into the second category, which includes those wetlands that have a significant nexus to the waters of the first category.[25] This nexus is present when wetlands independently, or in combination with similarly situated lands in the region, have a significant effect on more traditionally navigable waterways.[26]

As the Environmental Protection Agency (EPA) and the Corps have recognized, there can be more than one way to designate wetlands as similarly situated for the purposes of aggregating their effects for the significant nexus test.[27] In fact, a proposed rulemaking in the spring of 2014 specifically sought public comments to suggest approaches to determine how and when waters are

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[20] *Wetlands*, U.S. NAT'L OCEANIC & ATMOSPHERIC ADMIN., *supra* note 18.

[21] MARK A. CHERTOK, AM. LAW INST., FEDERAL REGULATION OF WETLANDS 1025, 1029 (2007).

[22] PAUL D. CYLINDER ET AL., WETLANDS, STREAMS, AND OTHER WATERS: REGULATION, CONSERVATION, MITIGATION PLANNING 21 (2004) (explaining that the CWA "regulates activities that result in the discharge of dredged or fill material into *waters of the United States*"); Mark S. Dennison & James F. Berry, *Challenging Wetland Regulation of Land Development*, *in* 53 AM. JUR. TRIALS 511 § 4 (1995); *see* Clean Water Act, 33 U.S.C. § 1344(a), (d) (2012) (granting the Secretary of the Army authority to issue permits for discharges into "the navigable waters"); *id.* § 1362(7) (defining "navigable waters" as "the waters of the United States").

[23] *See* Taylor Romigh, Comment, *The Bright Line of* Rapanos*: Analyzing the Plurality's Two-Part Test*, 75 FORDHAM L. REV. 3295, 3295 (2007); Jennifer L. Bolger & Edward B. Witte, *Post* Rapanos*: The Regulatory Miasma Engulfing Isolated Wetlands and the Clean Water Act*, A.B.A. AGRIC. MGMT. COMM. NEWSL., Aug. 2009, at 1, 8 (stating that the agencies have struggled with enforcement and creating appropriate guidance documents to clarify the extent of federal jurisdiction).

[24] Rapanos v. United States, 547 U.S. 715, 760–61 (2006).

[25] *Id.*

[26] *Id.* at 780.

[27] Definition of "Waters of the United States" Under the Clean Water Act, 79 Fed. Reg. 22188, 22189 (proposed Apr. 21, 2014) (to be codified at 33 C.F.R. pt. 328).

similarly situated and thus allowed to be aggregated for purposes of establishing a significant nexus.[28] A designation based on functionality could meet both agencies' goals of predictability and consistency, and facilitate carrying out their duties to protect water quality, public health, and the environment.[29] The hydrogeomorphic ("HGM") classification system is a function-based approach to classifying wetlands,[30] and it is a possible solution to the problem of determining when wetlands are similarly situated, as posed by the 2014 proposed rule.[31]

This Note argues that the HGM classification system could serve as an effective and ecologically sound method for identifying when CWA jurisdiction applies under the significant nexus test by determining which wetlands are similarly situated.[32] Part I provides an overview of the ecological value of wetlands and the functions they serve in an ecosystem and explains the HGM method for classifying wetlands as a means of understanding functionality.[33] Parts II and III provide the legal background of the jurisdictional scope of the CWA and explain the applicable tests set forth in the controlling Supreme Court cases, and particularly Justice Kennedy's significant nexus test.[34] Part IV argues that HGM classification should be used to define similarly situated areas for the significant nexus jurisdictional test because of its basis in wetland functionality.[35] This Note then concludes that using HGM classification for jurisdictional determinations would be consistent with ecological principles and applicable law, and would better protect small, geographically isolated wetlands from pollution, thereby protecting the watersheds that encompass them.[36]

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[28] *Id.*

[29] *See id.* at 22189 (requesting public suggestions for approaches that meet the agencies' goals of "greater predictability and consistency through increased clarity" and at the same time "fulfilling the agencies' responsibilities to the CWA's objectives and policies to protect water quality, public health, and the environment"); *infra* notes 216–279 and accompanying text.

[30] MARK M. BRINSON, A HYDROGEOMORPHIC CLASSIFICATION FOR WETLANDS 2 (1993).

[31] *See infra* notes 216–279 and accompanying text.

[32] *See infra* notes 216–279 and accompanying text.

[33] *See infra* notes 37–68 and accompanying text.

[34] *See infra* notes 69–215 and accompanying text.

[35] *See infra* notes 216–279 and accompanying text.

[36] *See infra* notes 216–279 and accompanying text.

I. WETLAND FACTUAL BACKGROUND

Wetlands are defined by their ecological characteristics.[37] Regardless of whether an area is visibly submerged or wet, it is the soils and vegetation found in an area that characterize it as a wetland.[38] In a wetland, water covers the soil or is near the surface of the soil for at least some periods during the year.[39] This heavy water saturation determines what soils, plants, and animals can live in the area.[40] Wetlands are found on every continent except Antarctica, yet the wide range of climates, topography, hydrology, water chemistry, and other factors, make wetlands around the world very different.[41]

A. Wetland Functions

In each of their differing environments, wetlands perform crucial functions that maintain the ecosystem.[42] The many functions of wetlands include regulating water levels, improving water quality, reducing damage from floods and storms, offering habitats for fish and wildlife, and serving as a popular area for fishing, hunting, and other recreation.[43] Among these functions is water quality improvement by, for example, recharging and discharging groundwater, capturing sediments, and filtering pollution.[44] Wetlands also interact with the other ecosystems in a watershed, and these interactions play a crucial role in the ecology of the watershed as a whole.[45]

The important functions that wetlands serve are often not attributed to small, so-called "isolated" wetlands,[46] despite their importance in preserving

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[37] *See* CYLINDER ET AL., *supra* note 22, at 5 (explaining that wetlands are "characterized by distinctive physical, chemical, and biological features, including hydrology, soils, and vegetation types that typify these specialized habitats"); *Wetlands*, CHESAPEAKE BAY PROGRAM, *supra* note 12 (stating that wetlands are defined on the basis of an area's soils and vegetation).

[38] *Wetlands*, CHESAPEAKE BAY PROGRAM, *supra* note 12.

[39] *What Are Wetlands?*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/type/wetlands/what.cfm (last updated Oct. 9, 2012), *archived at* http://perma.cc/F4M9-UWSV.

[40] *Id.* The plants that inhabit a wetland are primarily hydrophytes: plants that thrive in periodically flooded hydric soils. CYLINDER ET AL., *supra* note 22, at 7; *Wetlands*, CHESAPEAKE BAY PROGRAM, *supra* note 12.

[41] *Wetlands Definitions*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/lawsregs/guidance/wetlands/definitions.cfm (last updated Sept. 25, 2013), *archived at* http://perma.cc/Q4SW-U96R.

[42] *See America's Wetlands*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/type/wetlands/wetlands.cfm (last updated Mar. 6, 2012), *archived at* http://perma.cc/3WD9-84BV (explaining that wetlands serve important functions "whether [wetlands are] drier or wetter, bigger or smaller").

[43] *Id.*

[44] *See* CYLINDER ET AL., *supra* note 22, at 13.

[45] *See Wetlands and Nature*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/type/wetlands/nature.cfm (last updated Oct. 9, 2012), *archived at* http://perma.cc/CGB6-A7CX.

[46] *See* PHILIP WOMBLE ET AL., ENVTL. LAW INST., AMERICA'S VULNERABLE WATERS: ASSESSING THE NATION'S PORTFOLIO OF VULNERABLE AQUATIC RESOURCES SINCE *RAPANOS V. UNIT-*

watershed function, maintaining biodiversity, and protecting the water quality of downstream waters.[47] This lack of attribution is consistent with the Corps' definition of isolated wetlands geographically instead of functionally, meaning any wetlands that do not have a surface connection to other water bodies are considered isolated.[48] In contrast to this geographic approach, characterizing a wetland as isolated from a landscape perspective would require assessment of the ecological relationships and interactions between the wetland and other ecosystems in a watershed.[49] Although any individual wetland may not affect overall water quality substantially, the collective impact of individual isolated wetlands can have a disproportionate effect on the entire watershed.[50]

The geographic approach does not account for the fact that small wetlands that appear isolated on the surface usually connect to a larger system of waterways through groundwater.[51] It thus fails to recognize the negative impacts to the ecosystems that these smaller wetlands can have, particularly the effect on the water quality of downstream waterways.[52] Due to these hydrologic connections between individual wetlands and their surrounding ecosystems, protecting even small, geographically isolated wetlands is important for the health of the watersheds that encompass them.[53]

ED STATES 1, 18 (2011), *available at* http://www.eli.org/sites/default/files/eli-pubs/d21-06.pdf, *archived at* http://perma.cc/LX4K-7X84 (explaining that vulnerable aquatic resources not protected by the CWA often include small streams and geographically isolated wetlands); J. Russell Bodie & Raymond D. Semlitsch, *Are Small, Isolated Wetlands Expendable?*, 12 CONSERVATION BIOLOGY 1129, 1130 (1998) (challenging the "bias against protecting small, isolated wetlands").

[47] JUDY L. MEYER ET AL., AM. RIVERS & SIERRA CLUB, WHERE RIVERS ARE BORN: THE SCIENTIFIC IMPERATIVE FOR DEFENDING SMALL STREAMS AND WETLANDS 3 (2003), *available at* http://vault.sierraclub.org/watersentinels/downloads/WhereRiversAreBorn.pdf, *archived at* http://perma.cc/HX7F-996W; WOMBLE ET AL., *supra* note 46, at 25; Bodie & Semlitsch, *supra* note 46, at 1130.

[48] BRADDOCK, *supra* note 19, at 40.

[49] *Id.* ("Many wetlands that appear visually to be isolated are often connected to other waterways through subsurface water and from a landscape perspective are not isolated at all.").

[50] J. BRADLEY JOHNSON, U.S. ENVTL. PROT. AGENCY, HYDROGEOMORPHIC WETLAND PROFILING: AN APPROACH TO LANDSCAPE AND CUMULATIVE IMPACTS ANALYSIS 1–2 (2005), *available at* http://www.epa.gov/naaujydh/pages/publications/authored/EPA620R-05001WED-05-056Johnson.pdf, *archived at* http://perma.cc/9YRH-JMW9.

[51] MEYER ET AL., *supra* note 47, at 3; Scott G. Leibowitz, *Isolated Wetlands and Their Functions: An Ecological Perspective*, 23 WETLANDS 517, 518 (2003).

[52] MEYER ET AL., *supra* note 47, at 4 (describing how changes to the lands surrounding small wetlands can cause a series of processes that degrade downstream water quality).

[53] *Id.*; *see* WOMBLE ET AL., *supra* note 46, at 26 (explaining that small wetlands not subject to CWA jurisdiction nonetheless help maintain water quality in their watershed).

B. Wetland Functional Classification

Under CWA regulations, wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."[54] A variety of other definitions have been formulated, however, and each is based on the purpose the definition was intended to serve.[55] For example, whereas early definitions focused on science, later definitions focused on legal terminology and standards.[56] Wetland delineation from a legal perspective became particularly important with the passage of the CWA,[57] which limits when wetlands may be filled by establishing a permitting process.[58]

The permitting process of Section 404(b) of the CWA requires a permit applicant to first consider any less harmful alternatives to filling a wetland and to then minimize the impacts of the construction.[59] Where impacts to wetlands are unavoidable, regulations require compensatory mitigation, where a permit recipient compensates for the harm the construction will cause to the aquatic ecosystem by replacing the wetland.[60] In the past, the Corps measured wetland replacement for compensatory mitigation by acreage.[61] This method failed to account for the variation in wetland function, however, and thus, the replacement in acreage did not always compensate for the loss of ecological and hy-

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[54] 40 C.F.R. § 230.3(t) (1996).

[55] BRADDOCK, *supra* note 19, at 7.

[56] *Id.*

[57] *See id.* at 10.

[58] 33 U.S.C. § 1344(a) (2012).

[59] *Id.* § 1344(b); U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENGINEERS, WETLANDS COMPENSATORY MITIGATION RULE 1 (2008), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/MitigationRule.pdf, *archived at* http://perma.cc/NH3T-KG9L; Robert W. Adler, *The Decline and (Possible) Renewal of Aspiration in the Clean Water Act*, 88 WASH. L. REV. 759, 791 (2013); *see* 40 C.F.R. § 230.10(a) (2012) (prohibiting the granting of a permit if there is a practicable alternative to the discharge that would be less damaging to the aquatic ecosystem); *id.* § 230.10(d) (prohibiting the granting of a permit unless the applicant has taken "appropriate and practicable steps" to "minimize potential adverse impacts . . . on the aquatic ecosystem").

[60] U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENGINEERS, *supra* note 59, at 1; Adler, *supra* note 59, at 791; Mark M. Brinson & Richard Rheinhardt, *The Role of Reference Wetlands in Functional Assessment and Mitigation*, 6 ECOLOGICAL APPLICATIONS 69, 70 (1996); *see* Compensatory Mitigation for Losses of Aquatic Resources, 40 C.F.R. §§ 230.91–.98 (2008); *id.* § 230.92 (defining compensatory mitigation as the restoration, establishment, enhancement and preservation of aquatic resources to offset any unavoidable adverse impacts of a proposed project).

[61] Adler, *supra* note 59, at 807 (comparing the acreage of wetlands destroyed to the acreage replaced).

drological function.[62] Assessing wetland functionality—comparing the wetland functions and values created or restored to those lost by the permitted construction—was found to be a more useful way to measure successful wetland replacement.[63]

To meet the need for functional assessment for compensatory mitigation, scientists developed the functionality-based HGM classification as part of a wetland functional assessment model.[64] The HGM system is a systematic method of measuring wetland values and functions, and it is broad enough to classify most wetlands.[65] It does so based on where they are in the landscape—their hydrogeomorphic setting—, their source of water, and the water dynamics within the wetland.[66] These kinds of hydrologic and geomorphic factors are used because they are determinative of wetland functionality within an ecosystem.[67] The HGM classification system thus effectively measures a wetland's capacity for certain functions, making it a useful basis for wetland functional assessments under the CWA.[68]

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[62] *See* COMM. ON MITIGATING WETLAND LOSSES, NAT'L RESEARCH COUNCIL, COMPENSATING FOR WETLAND LOSSES UNDER THE CLEAN WATER ACT 113 (2001), *available at* http://www.tetonwyo.org/compplan/LDRUpdate/RuralAreas/Additional%20Resources/BEST%20-%20Wetland%20Mitigation%20Book.pdf, *archived at* http://perma.cc/N7UF-83G7 (describing an investigation of a compensatory mitigation program resulting in a twenty-seven hectare net gain in wetland area with insufficient hydrologic qualities); Adler, *supra* note 59, at 807 (noting matching acreage does not ensure successful compensatory mitigation because of the variety of functions and values wetlands provide and that the compensatory mitigation program has thus largely been inadequate in replacing lost functions).

[63] Adler, *supra* note 59, at 808; Brinson & Rheinhardt, *supra* note 60, at 70.

[64] The National Action Plan to Implement Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. 33,607, 33,608–33,609 (June 20, 1997) (explaining that the HGM Approach was designed to provide better information on wetland functions for the Section 404(b) regulatory program and that such information could be used to help regulators evaluate compliance with the regulation, which requires compensatory mitigation); BRADDOCK, *supra* note 19, at 17; COMM. ON MITIGATING WETLAND LOSSES, *supra* note 62, at 131.

[65] COMM. ON MITIGATING WETLAND LOSSES, *supra* note 62, at 114; Adler, *supra* note 59, at 807.

[66] BRADDOCK, *supra* note 19, at 16–17; COMM. ON MITIGATING WETLAND LOSSES, *supra* note 62, at 132; *see* NATURAL RES. CONSERVATION SERV., U.S. DEP'T OF AGRIC., HYDROGEOMORPHIC WETLAND CLASSIFICATION SYSTEM: AN OVERVIEW AND MODIFICATION TO BETTER MEET THE NEEDS OF THE NATURAL RESOURCES CONSERVATION SERVICE 4–5 (2008) (providing table with HGM classes and corresponding definitions that include physical characteristics and dominant water sources).

[67] BRADDOCK, *supra* note 19, at 17; BRINSON, *supra* note 30, at i, 1; JOHNSON, *supra* note 50, at 2–3.

[68] The National Action Plan to Implement Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. at 33,609; NATURAL RES. CONSERVATION SERV., *supra* note 66, at 1.

II. The Clean Water Act and Early Development of "Navigable Waters"

Activities in wetland areas are federally regulated under the Clean Water Act (CWA).[69] The CWA provides jurisdiction to the Army Corps of Engineers (the "Corps") and the Environmental Protection Agency (EPA) over "navigable waters," which are defined as "waters of the United States."[70] Historically, the definition of "navigable waters" has caused significant regulatory and judicial confusion because the meaning of "waters of the United States" has shifted away from a "navigable-in-fact" understanding, towards the outer limits of the interstate commerce clause.[71] The Corps and the EPA, which are jointly responsible for wetlands regulation,[72] have issued regulations and guidance to explain the scope of CWA jurisdiction, and specifically what constitutes the "waters of the United States."[73] In interpreting these agency materials, the Supreme Court has further complicated the definition—and the implementation of the CWA—by providing definitional tests that are not easily applied.[74]

A. The Clean Water Act and Permitting

The CWA, initially known as the Federal Water Pollution Control Act ("FWPCA"), was the first federal law to explicitly tackle water pollution.[75] Its purpose was to create a framework to regulate water pollution at the federal

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[69] Dennison & Berry, *supra* note 22, § 4.

[70] WANT, *supra* note 16, § 4:4.

[71] Adam Redder, Note, *Protecting America's Wetlands Under* Rapanos*: Defining "the Waters of the United States*,*"* 23 J. CIVIL RIGHTS & ECON. DEV. 293, 299 (2008); *see* Craig, *supra* note 8, at 112.

[72] WANT, *supra* note 16, § 3:1.

[73] *See Key Policy and Technical Guidance Documents Regarding Wetlands and Aquatic Resources in the United States*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/lawsregs/lawsguidance/cwa/wetlands/index.cfm (last updated Oct. 29, 2012), *archived at* http://perma.cc/E6TG-HA59; *Key Regulations Involving Wetlands and Aquatic Resources in the United States*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/lawsregs/lawsguidance/cwa/wetlands/regs_index.cfm (last updated Sept. 11, 2013), *archived at* http://perma.cc/USF7-YB8E.

[74] *See* Rapanos v. United States, 547 U.S. 715, 739 (2006); Donna Downing et al., *Technical and Scientific Challenges in Implementing* Rapanos' *"Water of the United States*,*"* 22 NAT. RESOURCES & ENV'T 42, 42–43 (2007) (noting that Supreme Court tests to establish jurisdiction rely on legal concepts rather than terms used by aquatic resource scientists).

[75] Susan Harris, Note, *"Pigs Will Fly": Protecting the Los Angeles River by Declaring Navigability*, 39 B.C. ENVTL. AFF. L. REV. 185, 196 (2012); *History of the Clean Water Act*, U.S. ENVTL. PROT. AGENCY, http://www2.epa.gov/laws-regulations/history-clean-water-act (last updated Jul. 8, 2014), *archived at* http://perma.cc/VC4U-XL4S. The FWPCA was enacted in 1948 and restructured in 1972 and 1977, leading to improved enforcement by incorporating a structure for regulating pollutant discharges into waters of the United States. *See* Harris, *supra* at 196; *History of the Clean Water Act*, *supra*.

level.[76] The CWA's lofty objective is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[77] To reach this objective, the CWA established two national goals: first, to eliminate the "discharge of pollutants into the navigable waters,"[78] and second, to achieve, wherever possible, "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water . . . ."[79] The CWA also aims to reduce water pollution by prohibiting pollutant discharges except in compliance with the specifically enumerated circumstances, as permitted by the Act.[80] Material used to fill wetlands constitutes pollutant discharge under the statutory definition of pollutant, which includes dredged spoil, rock, and sand, and such discharges are thus regulated.[81]

The federal permitting program established by Section 404 authorizes the Secretary of the Army, through the Chief of Engineers of the Corps, to issue permits for the discharge of dredged or fill material into navigable waters.[82] Though the permitting process serves as a major exemption to unlawful pollutant discharges, it nonetheless regulates the discharges by limiting and conditioning their legality.[83] The Section 404 permitting program only applies, however, if an act constitutes a "discharge into navigable waters," which can significantly limit the CWA's statutory authority over small, isolated wetlands.[84]

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[76] Lawrence Lee Budner, Note, *Is a Logging Road's Collected Runoff Exempt from NPDES Permitting?—Rethinking the EPA's "Silvicultural Rule,"* 40 B.C. ENVTL. AFF. L. REV. 197, 201 (2013).

[77] Clean Water Act, 33 U.S.C. § 1251(a) (2012).

[78] *Id.* § 1251(a)(1).

[79] *Id.* § 1251(a)(2). The target dates to achieve the goals included in the statute have been redacted. *See id.*

[80] *Id.* § 1311(a) (making unlawful any pollutant discharges "except as in compliance with this section and sections 1312, 1316, 1317, 1328, 1342, and 1344").

[81] *See id.* § 1362(6); *see, e.g.*, United States v. Pozsgai, 999 F.2d 719, 725 (3d Cir. 1993); United States v. Weisman, 489 F.Supp. 1331, 1333, 1337 (M.D. Fla. 1980). Dredged spoil, rock, and sand are components of the fill material landowners have used to fill wetlands, so the discharge of those materials into jurisdictional wetlands has been found to constitute a violation of the CWA. *See Pozsgai*, 999 F.2d at 725; *Weisman*, 489 F.Supp. at 1333, 1337.

[82] 33 U.S.C. § 1344(a) (authorizing the Secretary to issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites"); *id.* § 1344(d) (defining Secretary as Secretary of the Army, acting through the Chief of Engineers). Though the EPA has the authority to issue permits for the discharge of other pollutants under the CWA, the Corps has retained authority to regulate filling of wetlands because of its history of regulating wetlands under the Rivers and Harbors Act. *Id.* § 1342(a)(1); BRADDOCK, *supra* note 19, at 43–44; *see also* WANT, *supra* note 16, § 3:1 (noting that under the Rivers and Harbors Act, the Corps had regulatory authority over wetlands, and under the CWA, the Corps has the sole authority to issue permits for discharges into navigable waters).

[83] *See* 33 U.S.C. § 1311(a) (2012) (establishing the illegality of pollutant discharges); BRADDOCK, *supra* note 19, at 43 (explaining that the CWA's prohibition of discharging pollutants into "waters of the United States" without a permit is meant to control pollution).

[84] 33 U.S.C. § 1344(a).

The vaguely defined term "navigable waters" thus causes considerable conflict over CWA jurisdiction and specifically in determining which geographic areas are covered by the statute.[85]

B. Early Definitions of "Navigable Waters"

1. Shifting Away from Navigable-in-Fact

The first definition of the term "navigable" to appear in the U.S. Code was in the Rivers and Harbors Act ("RHA") of 1899.[86] The term only included waters that "were or could be made navigable," given its literal meaning.[87] The RHA regulated water transportation and commerce, and the section that prevented pollution was intended to maintain navigation, rather than protect water quality.[88] This distinction in regulatory intent explains the discrepancy in the term's meaning in the RHA as compared to the CWA.[89]

"Navigable waters" is defined in the CWA as "the waters of the United States, including the territorial seas."[90] The legislative history sheds a little light on Congress' intended meaning of "navigable waters."[91] A conference report discussing two potential versions of the statute specifically stated "the conferees fully intend that the term 'navigable waters' be given the broadest possible constitutional interpretation."[92]

Rather than adopting the expansive approach suggested from the legislative history however, the 1974 Corps regulations defined "navigable waters" using the traditional definition from the RHA—navigable-in-fact.[93] Specifically, the Corps regulations defined navigable waters as "those waters of the United States which are subject to the ebb and flow of the tide, and/or are presently, or have been in the past, or may be in the future susceptible for use for purposes of interstate or foreign commerce."[94]

Soon thereafter, courts began adopting a more expansive definition of "navigable," thus taking the next step toward a more practical interpretation of

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[85] *See* Harris, *supra* note 75, at 198.
[86] *Id.* at 196.
[87] *Id.*
[88] *Id.* at 198.
[89] *See id.*
[90] 33 U.S.C. § 1362(7) (2012).
[91] *See* EDMUND MUSKIE, FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, S. REP. NO. 92-1236, at 144 (1972) (Conf. Rep.).
[92] *Id.*
[93] *See* 33 C.F.R. § 209.120(d)(1) (1974) (restricting the definition of navigable waters to waters that could sustain interstate or foreign commerce, a requirement based on the focus of the RHA: to maintain commerce).
[94] *Id.*

CWA jurisdiction that could facilitate the protection of valuable wetlands.[95] The U.S. District Court for the Middle District of Florida, in *United States v. Holland*, referenced the aforementioned conference report discussing the deletion of "navigable" from the House's definition of "navigable waters" when it held that the term should be given a broad construction.[96] The district court held that the legislative history clearly demonstrated that the amendments to the FWPCA—turning it into the CWA—were intended to expand the statute's jurisdiction beyond waters that are navigable-in-fact.[97]

Similarly, the U.S. District Court for the District of Columbia, in *Natural Resources Defense Council, Inc. v. Callaway*, found the term "navigable" should not be given the traditional navigable-in-fact interpretation and should extend to "the maximum extent permissible under the Commerce Clause of the Constitution."[98] The court thus required the Corps to revoke and rescind the part of the 1974 regulations that limited CWA jurisdiction beyond Commerce Clause limitations.[99]

In response to these court decisions, in 1977 the Corps revised its regulations, expanding the definition of "the waters of the United States."[100] The term came to encompass the traditionally navigable-in-fact definition and also other waters—including wetlands—whose use or loss could affect interstate commerce.[101]

2. Further Jurisdictional Expansion

In 1985, the Supreme Court continued the trend toward increasing the jurisdictional scope of the CWA in *United States v. Riverside Bayview Homes,*

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[95] *See, e.g.*, Nat. Res. Def. Council, Inc. v. Callaway, 392 F.Supp. 685, 686 (D. D.C. 1975) (finding that the Corps had overstepped its authority in promulgating 33 C.F.R. § 209.120 because "navigable waters" must be interpreted to the "maximum extent permissible under the Commerce Clause of the Constitution."); United States v. Holland, 373 F.Supp. 665, 672 (M.D. Fla. 1974) (finding that Congress intended to "define away" the navigability restriction).

[96] *Holland*, 373 F.Supp. at 672.

[97] *Id.* at 671–72.

[98] 392 F.Supp. at 686.

[99] *Id.*

[100] 42 Fed. Reg. 37122, 37144 n.2 (July 19, 1977) (explaining the expanded meaning of "waters of the United States" to the outer limits of the commerce power); CYLINDER ET AL., *supra* note 22, at 27.

[101] *See* 42 Fed. Reg. at 37144 n.2. The regulation extended CWA jurisdiction to:

> All other waters of the United States not identified . . . above, such as isolated wetlands and lakes, intermittent streams, prairie pot-holes, and other waters that are not part of a tributary system to interstate waters or to navigable waters of the United States, the degradation or destruction of which could affect interstate commerce.

Id. at 37144.

Inc.[102] In the case, the Corps sought to enjoin Riverside Bayview Homes, Inc. from filling its property to construct a housing development because the Corps believed it was an "adjacent wetland" pursuant to the governing 1982 regulation.[103] The Court reviewed the Corps' interpretation of "the waters of the United States" in the regulation under *Chevron* deference.[104] The Court's review led to a holding that if the Corps' interpretation were valid, then the property would come within the definition of an adjacent wetland.[105]

The Court recognized that, though it seems unreasonable for any piece of land to be categorized as "waters," a line must be drawn somewhere to distinguish water from solid ground, and this distinction is inherently unclear.[106] In defining "the waters of the United States," the Court thus required the Corps to determine a point at which its jurisdiction ends, but acknowledged that the transition between water and dry land is not usually so clear.[107] Acknowledging the difficulty of drawing this line, the Court held that the Corps' interpretation was reasonable in light of legislative history of the CWA.[108] The decision in *Riverside Bayview* effectively upheld the Corps' 1977 regulations, and thus allowed hydrologic connections, biological and ecological functions, and a wetland's ecological relationships in the aquatic environment to be considered in determining CWA jurisdiction.[109]

After *Riverside Bayview*, the Corps promulgated the migratory bird rule (the "MBR") in 1986.[110] The rule was a "nonregulatory preliminary explana-

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[102] *See* 474 U.S. 121, 133 (1985) (adopting the approach of several lower courts by using legislative history and purpose as indicators of how to interpret "navigable waters"); Craig, *supra* note 8, at 116.

[103] *Riverside Bayview*, 474 U.S. at 124. The governing 1982 regulation was substantively the same as the 1977 regulation, which no longer required periodic inundation for an area to constitute a wetland, but based the definition on the presence of certain vegetation. *Id.*; *see* 33 C.F.R. § 323.2(c) (1985) (requiring only that inundation or saturation by surface or ground water be frequent enough to support vegetation that can survive in saturated soils).

[104] *Riverside Bayview*, 474 U.S. at 134–35. *Chevron* deference is a broad level of judicial deference afforded to agencies when they meet a two-pronged test: first, the language of the statute must be ambiguous, and second, the agency's interpretation of the statute must be reasonable. *See* Chevron, U.S.A., Inc. v. Nat. Res. Def. Council, Inc., 467 U.S. 837, 843–44 (1984).

[105] *Riverside Bayview*, 474 U.S. at 131.

[106] *Id.* at 132.

[107] *Id.*

[108] *Id.* at 132–33. Because the legislative history of the CWA indicated an intention for jurisdiction to be interpreted broadly, and it is inherently a challenge to establish where CWA jurisdiction should begin, the Court deferred to the Corps. *See id.*

[109] *See id.* at 133–35.

[110] Final Rule for Regulatory Programs of the Corps of Engineers, 51 Fed. Reg. 41,206, 41,217 (Nov. 13, 1986) (providing intent behind 33 C.F.R. § 328.3(a)(3) (1985), in response to comments and explaining that jurisdictional waters included those that are or would be used by birds protected by

tion" used to clarify the extent of CWA jurisdiction over intrastate waters.[111] The MBR recognized the value of an ecosystem's function in assessing jurisdiction, with habitat and irrigation functions specifically noted as establishing an otherwise intrastate wetland as worthy of federal protection.[112] The rule relied on the actual or potential use of certain intrastate waters for habitat by migratory birds to satisfy the interstate commerce requirement of federal jurisdiction.[113]

3. The Creation of the Significant Nexus Requirement—*SWANCC II*

Both the Ninth Circuit and the Seventh Circuit upheld the Corps' broad interpretation of CWA jurisdiction reflected in the MBR as consistent with the statute,[114] but the Supreme Court did not address the legality of the1986 regulation until 2001, in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (*SWANCC II*).[115]

In *SWANCC I*, The Solid Waste Agency of Northern Cook County ("SWANCC") sought a permit from the Corps to fill more than seventeen acres of gravel pits that contained permanent and seasonal ponds and small lakes.[116] It planned to use the area as a landfill for baled waste.[117] The Corps denied the permit and in response, SWANCC sued, arguing that the Corps did not have jurisdiction over the area and thus could not require a Section 404 permit.[118]

Migratory Bird Treaties and those that are or would be used as a habitat by other migratory birds that cross state lines); Craig, *supra* note 8, at 117.

[111] Craig, *supra* note 8, at 117–18. The explanation noted that certain categories of intrastate waters would be covered when the areas could be used as habitat by several categories of birds and other animals. Final Rule for Regulatory Programs of the Corps of Engineers, 51 Fed. Reg. at 41,217; Craig, *supra* note 8, at 117–18. These categories included birds protected by the Migratory Bird Treaties, other migratory birds that cross state lines, and endangered species. Final Rule for Regulatory Programs of the Corps of Engineers, 51 Fed. Reg. at 41,217.

[112] *See* Craig, *supra* note 8, at 117–18.

[113] Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs (*SWANCC I*), 191 F.3d 845, 847 (7th Cir. 1999); *see* Final Rule for Regulatory Programs of the Corps of Engineers, 51 Fed. Reg. at 41,217 (allowing the presence of migratory birds that cross state lines to determine when a wetland is subject to the CWA).

[114] Hoffman Homes, Inc. v. Envtl. Prot. Agency, 999 F.2d 256, 261 (7th Cir. 1993); Leslie Salt Co. v. United States, 896 F.2d 354, 360 (9th Cir. 1990).

[115] *See generally* Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (*SWANCC II*), 531 U.S. 159, 166–67, 174 (2001) (reversing the Seventh Circuit's decision on the validity of the MBR).

[116] *SWANCC I*, 191 F.3d at 847, 848.

[117] *Id.*

[118] *Id.* at 847.

The district court granted summary judgment to the Corps on the jurisdictional issue, and SWANCC appealed.[119]

The U.S. Court of Appeals for the Seventh Circuit followed the line of cases upholding the MBR in upholding the Corps' jurisdiction as constitutional under the Commerce Clause.[120] The court found that the cumulative impact doctrine could apply to the MBR, which allowed regulation of the activity on otherwise isolated wetlands due to its substantial aggregated effect, even though the activity in isolation did not substantially affect interstate commerce.[121] The court reasoned that the aggregate economic effect of destroying the natural habitat of migratory birds on interstate commerce was substantial.[122] On the question of whether the regulation expanded jurisdiction beyond the scope of the Corps' authority, the court held that CWA jurisdiction could reach to the greatest extent permissible under the Constitution, and thus the Corps' regulation was constitutional given the court's prior holding of constitutionality under the Commerce Clause.[123]

The Supreme Court in *SWANCC II*, however, reversed the Seventh Circuit decision and invalidated the MBR, holding that the extension of jurisdiction exceeded the Corps' authority under the CWA.[124] The Court distinguished the situation from *Riverside Bayview*, reading into that case a "significant nexus" test that requires a biological connection between the wetlands and the navigable waters.[125] Thus, whereas in *Riverside Bayview* the wetlands at issue were "inseparably bound up with the 'waters' of the United States," the gravel pit at issue in *SWANCC II* only had a connection to navigable-in-fact waters through the migratory birds that inhabited it.[126] The Court reasoned that allowing the wetland to fall within CWA jurisdiction would read navigable entirely out of the statute, which the Corps did not have the authority to do.[127]

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[119] *Id.*

[120] *Id.* at 850.

[121] *Id.* (citing Wickard v. Filburn, 317 U.S. 111 (1942) for the principal that economic effects of the regulated activity can be aggregated to find a substantial impact on interstate commerce, even though the effect of the activity in isolation may not have a substantial economic impact).

[122] *SWANCC I*, 191 F.3d at 850.

[123] *See id.* The Seventh Circuit emphasized a fact-sensitive inquiry by the Corps when making CWA jurisdictional determinations to establish whether a wetland falls within the MBR due to its function as a habitat to migratory birds. *Id.*

[124] *Id.* at 167.

[125] *See id.* (reasoning that the basis for the decision in *Riverside Bayview* was a significant nexus between the wetlands and navigable waters (citing 474 U.S. at 133)).

[126] *See id.* at 164, 167.

[127] *Id.* at 172 (finding that the term navigable still carries weight, despite the legislative history and the holding in *Riverside Bayview* indicating that it is of "limited import" (citing *Riverside Bayview*, 474 U.S. at 133)).

The four-justice dissent in *SWANCC II* emphasized the aggressive FWPCA Amendments of 1972 and their underlying purpose.[128] Considering the objective of the resulting CWA, the dissent found the scope of the statute's jurisdiction "requires neither actual nor potential navigability."[129] It also noted the importance of the ecological connection between wetlands and navigable-in-fact waters in determining jurisdiction.[130]

After the *SWANCC II* decision, CWA jurisdiction became even murkier, and further, a circuit split arose regarding the scope of the holding.[131] Today, the only clear holding of *SWANCC II* is a narrow one: the CWA does not confer federal regulatory jurisdiction over isolated, intrastate waters.[132] A Joint Memorandum by the Corps and the EPA in January 2003 reflected only this narrow construction of *SWANCC II*, prohibiting CWA jurisdiction on the basis of only migratory birds as the connection to navigable waters.[133] Some courts, however, interpreted the decision as invalidating any jurisdiction over isolated, non-navigable, intrastate waters and require a "direct and non-tenuous linkage" to a navigable-in-fact waterway to impute CWA jurisdiction.[134]

Consequently, implementation of *SWANCC II* resulted in the inconsistent application of the holding and particularly of the significant nexus test.[135] A minority of circuit courts rejected the notion that a significant nexus can be established by a "mere hydrological connection," and thus prevented the use of ecology generally to establish the connection to a navigable-in-fact waterway.[136] A majority however, found that *SWANCC II* allows ecological connections to constitute a significant nexus.[137]

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[128] *See id.* at 175, 177 (Stevens, J., dissenting).

[129] *Id.* at 175.

[130] *Id.* at 177 n.2. This was important in *Riverside Bayview* and, the dissent reasoned, should have been determinative in this case because of the important functions migratory birds serve across North America and their dependence on wetlands for survival. *Id.* (citing 474 U.S. at 133).

[131] Jonathan H. Adler, *When Is Two a Crowd? The Impact of Federal Action on State Environmental Regulation*, 31 HARV. ENVTL. L. REV. 67, 112–13 (2007).

[132] *Id.* at 112; Redder, *supra* note 71, at 314.

[133] Adler, *supra* note 131, at 112.

[134] *See, e.g.*, D.E. Rice v. Harken Exploration Co., 250 F.3d 264, 269 (5th Cir. 2001); Redder, *supra* note 71, at 315.

[135] *See* FD & P Enters., Inc. v. U.S. Army Corps of Eng'rs, 239 F.Supp. 2d 509, 513 (D. N.J. 2003) (contrasting two significant readings of *SWANCC II*).

[136] Jeremy A. Colby, *SWANCC: Full of Sound and Fury, Signifying Nothing . . . Much?*, 37 J. MARSHALL L. REV. 1017, 1038 (2004); *see, e.g.*, *D.E. Rice*, 250 F.3d at 269; *FD & P Enters.*, 239 F.Supp. 2d at 516–17.

[137] Colby, *supra* note 136, at 1037–40; *see* Headwaters, Inc. v. Talent Irrigation Dist., 243 F.3d 526, 533 (9th Cir. 2001); Carabell v. U.S. Army Corps of Eng'rs, 257 F.Supp. 2d 917, 930–32 (E.D. Mich. 2003); United States v. Hummel, No. 00 C 5184, 2003 WL 1845365, at *6 (N.D. Ill. April 8, 2003).

III. Modern Interpretation of Navigable Waters—Significant Nexus and Similarly Situated Wetlands

A. The Supreme Court Decision in Rapanos v. United States

In *Rapanos v. United States*, the area at issue for Clean Water Act (CWA) jurisdictional determination was four wetlands near "ditches or man-made drains that eventually empt[ied] into traditional navigable waters."[138] Similar to the decision in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (*SWANCC II*), *Rapanos* was decided by a close margin.[139] Justice Scalia wrote the plurality opinion and Justice Kennedy concurred on the outcome but not the reasoning.[140]

1. Justice Scalia Plurality

The plurality relied on Webster's New International Dictionary to define "the waters of the United States" and established a test for CWA jurisdiction on its definitional basis.[141] In assessing the use of the term, Justice Scalia emphasized the use of the article "the" and the plural form "waters" as opposed to the more general "water of the United States."[142] Justice Scalia extrapolated that "the waters of the United States" only includes relatively permanent, standing or flowing bodies of water—not "transitory puddles or ephemeral flows of water."[143] He based this on his observation that the waters listed in the dictionary definition are all continuously present and do not include any lands or waters that have only "occasional or intermittent flow."[144] Also, expanding on the reasoning of the majority in *SWANCC II*, Justice Scalia reasoned that the use of the traditional term "navigable waters" supports the notion that "the waters" must be relatively permanent, as "navigable waters" traditionally only referred to discrete bodies of water.[145]

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[138] 547 U.S. 715, 729 (2006).

[139] *See* 547 U.S. at 718 (holding by a plurality decision of four justices joining the opinion, one justice concurring in part, and four justices dissenting); 531 U.S. 159, 161 (2001) (five to four decision).

[140] *Rapanos*, 547 U.S. at 718, 779.

[141] *Id.* at 732.

[142] *Id.* "[T]he waters" refers to water "[a]s found in streams and bodies forming geographical features such as oceans, rivers, [and] lakes," or "the flowing or moving masses, as of waves or floods, making up such streams or bodies." *Id.* (citing Webster's New International Dictionary, 2882 (2d ed. 1954)).

[143] *Rapanos*, 547 U.S. at 732–33.

[144] *Id.* at 733.

[145] *Id.* at 734. Justice Scalia interpreted *SWANCC II* to have meant that the term must carry some of its original substance. *Id.* (citing 531 U.S. at 159). He then assumed the minimum of that limited effect to mean the ordinary presence of water. *Id.*

Significantly, the plurality characterized the holding in *SWANCC II* as rejecting the use of ecological connections between a wetland and a navigable-in-fact waterway to establish a significant nexus.[146] Although a majority of circuit courts after *SWANCC II* had interpreted ecological or hydrological connections to satisfy the significant nexus test,[147] the plurality implicitly found such connections only relevant to resolve ambiguities regarding where water ends and adjacent wetlands begin.[148] Ecological factors, therefore, cannot be used to bring an isolated, intrastate wetland into CWA jurisdiction under the plurality's opinion.[149]

2. Justice Kennedy Concurrence

Justice Kennedy centered his proposed standard on the purpose of the CWA, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[150] He reasoned that the connection between any wetland and navigable-in-fact water could be characterized as comparable to either *United States v. Riverside Bayview Homes, Inc.* or *SWANCC II*.[151]

Per Justice Kennedy, this connection is the significant nexus, and determining whether an area has such a connection should be assessed in terms of the goals and purposes of the CWA.[152] The rationale for regulating wetland pollution in the CWA was that wetland ecosystems serve critically valuable functions to the integrity of other waters.[153] Justice Kennedy thus established a test for determining the presence of a significant nexus that relies on characterizing lands as similarly situated.[154] Wetlands that "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable'" will be found to have a significant nexus.[155] Justice

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[146] *See Rapanos*, 547 U.S. at 741–42.

[147] Colby, *supra* note 136, at 1038–40; *see, e.g.*, Headwaters, Inc. v. Talent Irrigation Dist., 243 F.3d 526, 533 (9th Cir. 2001); Carabell v. U.S. Army Corps of Eng'rs, 257 F. Supp. 2d 917, 931–32 (E.D. Mich. 2003) (citing *Headwaters*, 243 F.3d at 533, and the cases it relies on for the interpretation of *SWANCC II*, 531 U.S. 159 as a narrow holding); United States v. Hummel, No. 00 C 5184, 2003 WL 1845365, at *6 (N.D. Ill. April 8, 2003).

[148] *See Rapanos*, 547 U.S. at 742.

[149] *See id.*

[150] *See id.* at 779–80 (Kennedy, J., concurring).

[151] *See id.* at 767 (reasoning that there may be a sufficiently close connection, as in *Riverside Bayview*, or there may be "little or no connection," as in *SWANCC II*); *SWANCC II*, 531 U.S. at 172; United States v. Riverside Bayview Homes, Inc., 474 U.S. 121, 133 (1985).

[152] *Rapanos*, 547 U.S. at 779.

[153] *Id.*

[154] *Id.* at 780.

[155] *Id.*

Kennedy added slightly more guidance by stating what does not constitute a significant nexus.[156] When "wetlands' effects on water quality are speculative or insubstantial" they are not considered "navigable waters."[157]

Even though a hydrologic connection does not always satisfy the test,[158] Justice Kennedy gave ecological factors some weight, which was much more than the plurality gave.[159] He recognized that ecological interconnections are important and allowed consideration of volume, regularity of flow, and proximity to a traditional navigable water as possible factors for categorically finding adjacent wetlands to have a significant nexus.[160]

Justice Kennedy's test requires substantial evidence to be reviewed by the court to establish a significant nexus.[161] Again indicating the importance of wetlands' ecological functions, he recognized that filling in wetlands that may not have direct connections with another water "can mean that floodwater, impurities, or runoff that would have been stored or contained in the wetlands will instead flow out to major waterways."[162] Furthermore, he mentioned the possibility of categorically establishing jurisdiction once a significant nexus has been established for a comparable wetland.[163]

*B. Post-*Rapanos *Interpretation of Significant Nexus*

The circuit courts have differed in their application of the split *Rapanos* decision.[164] The First, Third, and Eighth Circuits have held that what constitutes "the waters of the United States" may be determined by either the plurality test or Justice Kennedy's test.[165] The Seventh and Ninth Circuits apply the

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[156] *Id.*

[157] *Id.*

[158] *Id.* at 784–85 ("[A] mere hydrologic connection should not suffice in all cases; the connection may be too insubstantial for the hydrologic linkage to establish the required nexus with navigable waters as traditionally understood.").

[159] Redder, *supra* note 71, at 333.

[160] *Rapanos*, 547 U.S. at 780–81, 786 (Kennedy, J., concurring).

[161] *See id.* at 784, 786 (reasoning that the District Court's findings that the wetlands had "surface-water connections to tributaries of navigable-in-fact waters," should be provided to establish a significant nexus, in addition to evidence about the significance of those tributaries).

[162] *Id.* at 775 (concluding that, "it may be the absence of an interchange of waters prior to the dredge and fill activity that makes protection of the wetlands critical to the statutory scheme.").

[163] *Id.* at 782 (explaining that "[w]here an adequate nexus is established for a particular wetland, it may be permissible, as a matter of administrative convenience or necessity, to presume covered status for other comparable wetlands in the region.").

[164] WANT, *supra* note 16, § 4:31.1

[165] *Id.*

Kennedy test in most circumstances but allow the plurality test in rare cases.[166] The Eleventh Circuit only applies the Kennedy standard.[167]

1. Significant Nexus Prior to Agency Guidance

In *Northern California River Watch v. City of Healdsburg*, the U.S. Court of Appeals for the Ninth Circuit adopted Justice Kennedy's test.[168] In its application, the court found a significant nexus between wetlands and a navigable-in-fact river because only a man-made levee separated them, water from the wetland area seeped directly into the river, and when the river overflowed, the waters mixed, establishing a physical surface connection.[169]

The district court in *River Watch* had found important ecological and chemical connections between the wetlands and the river.[170] Specifically, it found that the populations of birds, mammals, and fish inhabiting the wetland were an integral part of the ecosystem.[171] Further, it found that the water of the wetlands also increased the chloride levels of the river, thus affecting its chemical integrity.[172] Because the facts in *River Watch* satisfied the Kennedy test in multiple ways however, it is unclear whether the Ninth Circuit would have held that the ecological connections alone would have satisfied the test.[173]

2. EPA and Corps Joint Guidance of 2007

With such lack of clarity surrounding CWA jurisdiction, the Environmental Protection Agency (EPA) and the Army Corps of Engineers (the "Corps") issued a Joint Guidance on June 5, 2007 (the "2007 Guidance") to help determine when waters are subject to CWA jurisdiction.[174] The agencies endeavored to establish a more uniform process for evaluating their jurisdiction in light of the confusion caused by the *Rapanos* decision.[175]

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[166] *Id.*

[167] *Id.*; *see, e.g.*, United States v. Robison, 505 F.3d 1208, 1221 (11th Cir. 2007).

[168] 496 F.3d 993, 999–1000 (9th Cir. 2007).

[169] *Id.*

[170] *Id.* at 1000–01.

[171] *Id.* at 1001 (finding that the animal populations were "indistinguishable from the rest of the Russian River ecosystem").

[172] *Id.*

[173] *See id.*

[174] U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENG'RS, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN *RAPANOS V. UNITED STATES* & *CARABELL V. UNITED STATES* 1 (2007) [hereinafter 2007 GUIDANCE].

[175] BRUCE S. FLUSHMAN & WENDY L. MANLEY, WENDEL, ROSEN, BLACK & DEAN LLP, POST-*RAPANOS* GUIDANCE FROM CORPS AND EPA: "YOU FIGURE IT OUT." (2007), *available at* http://

The 2007 Guidance provided some characteristics the Corps uses in assessing wetlands adjacent to non-navigable tributaries that are not relatively permanent and wetlands adjacent to, but not directly abutting, relatively permanent tributaries.[176] The agencies defined similarly situated from Justice Kennedy's concurrence as "all wetlands adjacent to the same tributary."[177] "Tributary" is then defined to include "natural, man-altered, or man-made water bodies that carry flow directly or indirectly into a traditional navigable water."[178] Agencies in the field then must "assess the flow characteristics and functions of the tributary itself, together with the functions performed by any wetlands adjacent to that tributary, to determine whether *collectively* they have a significant nexus with traditional waters."[179]

The 2007 Guidance also introduced factors relevant for a scientific assessment of the ecological relationship between tributaries and their adjacent wetlands that would be sufficient for significant nexus.[180] Some of the relevant functions wetlands serve and impacts they have on adjacent tributaries were listed to provide additional guidance for the factorial analysis.[181]

The cumulative impact concept, however, and its relation to establishing a significant nexus, could have been addressed more thoroughly.[182] Specifically, under the 2007 Guidance, wetland impacts may only be aggregated to a very limited extent.[183] Given Justice Kennedy's implicit recognition of the importance of aggregation to prevent massive cumulative impacts, aggregation should have allowed much more than was provided.[184] Requiring case-by-case

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www.wendel.com/index.cfm?fuseaction=content.contentDetail&id=8855##, *archived at* http://perma.cc/P4ER-NBZN; *see Rapanos*, 547 U.S. at 715; 2007 GUIDANCE, *supra* note 174, at 3.

[176] *See* 2007 GUIDANCE, *supra* note 174, at 7 (indicating that the CWA extends to these wetlands when there is a significant nexus with a traditionally navigable water).

[177] *Id.* at 9.

[178] *Id.* at 5 n.21. Additionally, a tributary is referred to as "the entire reach of the stream that is of the same order (i.e., from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream)." *Id.*

[179] *See id.* at 7 (emphasis added).

[180] *See id.* at 8.

[181] *Id.* These functions include holding floodwaters, intercepting sheet flow from uplands and then releasing waters in a more even and constant manner, maintaining water temperatures in tributaries, trapping and holding pollutants, and providing habitat for aquatic species. *Id.*

[182] *See* Letter from James Murphy et al. to the U.S. Environmental Protection Agency, Region III Water Protection Division, Attention Jennifer Sincock 1, 14 (Jan. 8, 2010) (on file with author) (regarding the National Wildlife Federation ("NWF") comments on Chesapeake Bay total maximum daily load development and draft bay strategy, and expressing dissatisfaction with the extent to which the notion of cumulative impact was addressed) [hereinafter NWF Letter].

[183] *Id.* at 14.

[184] *See id.* at 26–27(referencing Justice Kennedy's discussion of a hypoxia event in the Gulf of Mexico, where degradation of small streams and wetlands cumulatively amounted to a substantial increase in nutrient levels in the Mississippi River, which now causes dead zones in the Gulf); *see*

individualized analyses for significant nexus determinations with such limited aggregation is particularly troublesome because without aggregating the effects of small wetlands, important parts of the Chesapeake Bay watershed would go unregulated.[185]

3. Applying the Significant Nexus Test Post-Guidance

In 2011, the U.S. Court of Appeals for the Fourth Circuit, in *Precon Development Corp. Inc. v. U.S. Army Corps of Engineers*, determined that some aggregation of the impacts of wetlands is allowed.[186] In *Precon*, the Corps denied Precon Development Corporation's permit request to fill nearly five acres of wetlands that were about seven miles from the closest navigable waters.[187] The wetlands were near a 2500-foot man-made drainage ditch that flowed seasonally and eventually emptied into the Northwest River.[188] The court reviewed the Corps' characterization of the surrounding 448 acres of noncontiguous wetlands adjacent to the drainage ditch as similarly situated for purposes of aggregation.[189]

In recognizing that the impacts of some wetlands could be aggregated, the Fourth Circuit relied on Justice Kennedy's explanation that wetlands meet the significant nexus test when they, "either alone or *in combination with similarly situated lands in the region*, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as navigable."[190] It further relied on the 2007 Guidance, which defined similarly situated as "all wetlands adjacent to the same tributary."[191]

The court reasoned that the Corps had adopted Justice Kennedy's rationale for aggregating abutting and other adjacent wetlands, which requires some level of ecological expertise.[192] It further relied on the 2007 Guidance, which defined similarly situated as "all wetlands adjacent to the same tribu-

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also Rapanos, 547 U.S. at 777–78 (Kennedy, J., concurring) (discussing hypoxia event in the Gulf of Mexico).

[185] NWF Letter, *supra* note 182, at 14–15. If certain wetlands within the Chesapeake Bay watershed are not included in CWA jurisdiction, discharges of pollutants will not require permits and there will be no protection over areas of the Bay that are heavily impacted by pollution from wetlands. *Id.* Case-by-case analyses will be too time-consuming to protect such a huge region, so the NWF advocates for a categorical protection of the Chesapeake Bay watershed on the basis of ecological connections aggregating the effects of smaller, individual streams and wetlands. *See id.*

[186] 633 F.3d 278, 290 (4th Cir. 2011).

[187] *Id.* at 281.

[188] *Id.* at 282. A berm created by excavated material separated the wetlands from the ditch. *Id.*

[189] *Id.* at 292.

[190] *Id.* at 290 (citing *Rapanos*, 547 U.S. at 780).

[191] 2007 GUIDANCE, *supra* note 174, at 7.

[192] *Precon*, 633 F.3d at 291–92.

tary.[193] The Fourth Circuit noted that the agency's conclusory explanation, that the wetland "continue[d] to function as part of the entire 448 acres," was the bare minimum possible for deference.[194] The court urged the Corps to provide more evidence to establish such a large area as similarly situated wetlands in the future.[195]

4. The Draft Guidance of 2011

On April 27, 2011, seeking again to clarify implementation of CWA jurisdiction, the EPA and the Corps issued a draft guidance (the "2011 Draft Guidance") to identify waters protected by the CWA.[196] It reaffirmed some of the principles set forth in the 2007 Guidance.[197] It also expanded on some of the principles established by the Kennedy test that were not fully developed in the 2007 Guidance.[198] Specifically, it thoroughly described the process the Corps should take in determining whether a wetland meets the significant nexus requirement.[199] By breaking down the Kennedy test into its component parts, the 2011 Draft Guidance defined important terms that were previously unclear.[200] For example, the term "similarly situated" was redefined to be more specific,[201] referring to whether the waters could be characterized as belonging to the same resource type.[202] The draft also defined when waters are "in the region"

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[193] *Id.* at 292.

[194] *Id.*

[195] *Id.* at 293.

[196] U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENG'RS, DRAFT GUIDANCE ON IDENTIFYING WATERS PROTECTED BY THE CLEAN WATER ACT 1 (2011) [hereinafter 2011 DRAFT GUIDANCE]. A revised version of the 2007 Guidance was issued on December 2, 2008, but it did not alter the sections relevant to the significant nexus analysis. *See* U.S. ENVTL. PROT. AGENCY & U.S. ARMY CORPS OF ENGINEERS, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN *RAPANOS V. UNITED STATES* & *CARABELL V. UNITED STATES* 1, n.1 (2008).

[197] 2011 DRAFT GUIDANCE, *supra* note 196, at 2 (citing *Rapanos*, 547 U.S. at 715, 780 to reaffirm principles such as that CWA jurisdiction may be asserted according to either the plurality or the concurrence standards).

[198] *See id.* at 8 (elaborating on the concept of similarly situated and establishing that wetlands in the same category from among three specified categories constitute similarly situated for purposes of the significant nexus test). Such elaboration could appease nonprofit environmental groups that found the previous guidance unhelpful on these issues. *See id.*; NWF Letter, *supra* note 182, at 14 (expressing dissatisfaction with the limited extent to which the 2007 Guidance allowed aggregation).

[199] 2011 DRAFT GUIDANCE, *supra* note 196, at 7–10.

[200] *See id.* at 8.

[201] *Compare* 2011 DRAFT GUIDANCE, *supra* note 196, at 8 (defining similarly situated as falling within the same resource type), *with* 2007 GUIDANCE, *supra* note 174, at 7 (defining similarly situated as "all wetlands adjacent to the same tributary").

[202] 2011 DRAFT GUIDANCE, *supra* note 196, at 8. These resource types are: "(a) tributaries; (b) adjacent wetlands; or (c) other waters that are in close physical proximity to traditional navigable waters, interstate waters, or their jurisdictional tributaries ('proximate other waters')." *Id.*

as when they are within the same watershed.[203] Combining and applying these pieces to the complete significant nexus test, the 2011 Draft Guidance provides factors for the Corps to look for in evaluating impact on navigable-in-fact waters.[204]

Another important distinction from the 2007 Guidance is the 2011 Draft Guidance's emphasis on the need to group similarly situated wetlands and assess their collective relevance and impact.[205] The approach recommended in the 2011 Draft Guidance centers around the ecological principles behind aggregating wetlands—that no components of an ecosystem function independently and that collective harms can be considerable when individual components are not protected.[206]

Although the comment period for the 2011 Draft Guidance ended on August 1, 2011, the EPA and the Corps did not submit it to the Office of Information and Regulatory Affairs—within the White House Office of Management and Budget—until February 21, 2012.[207] The delay could have been due to a fear of the political consequences, as significant controversy surrounded the increase in CWA jurisdiction that the guidance recommends.[208] On October 2, 2013, a group of senators sent a letter to Gina McCarthy, the Administrator of the EPA, asking her to publically announce the EPA's withdrawal of the 2011 Draft Guidance.[209]

On March 25, 2014, the EPA and the Corps issued a proposed rulemaking intended to clarify the scope of CWA jurisdiction with respect to streams and

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[203] *Id.* A watershed is then defined by the area draining into the traditional navigable water or interstate water. *Id.*

[204] *Id.* at 9 (providing a list of functions of waters that could establish a significant nexus, including "sediment trapping, nutrient recycling, pollutant trapping and filtering, retention or attenuation of flood waters, runoff storage, and provision of aquatic habitat"). More specifically, the draft offers examples of ways waters can significantly affect the physical, biological, and chemical integrity of downstream waters. *Id.* at 9–10.

[205] *See id.* at 10. (explaining that protection of a watershed ecosystem requires protection of the component parts and that waters should be evaluated in terms of their interrelationships and functions within the ecosystem rather than in isolated parts). Environmental harms can collectively be much more significant than if viewed individually. *Id.*

[206] *Id.*

[207] Holly Doremus, *What's Holding Up the Clean Water Act Jurisdiction Guidance?*, LEGAL PLANET (May 20, 2013), http://legal-planet.org/2013/05/20/whats-holding-up-the-clean-water-act-jurisdictional-guidance, *archived at* http://perma.cc/5FXC-7YB8.

[208] *See id.*

[209] *EPW Republicans: EPA's Failure to Be Forthright on New Clean Water Act Rule Is Troubling*, U.S. SENATE COMM. ON ENV'T. & PUB. WORKS (Oct. 2, 2013), http://www.epw.senate.gov/public/index.cfm?FuseAction=PressRoom.PressReleases&ContentRecord_id=7a571db8-fbb2-beae-866b-7273b80f4ef3, *archived at* http://perma.cc/7VPM-6AU4.

wetlands.[210] This clarification should help protect waters that may not otherwise be regulated due to lack of clarity in enforcement.[211] The proposed rulemaking would not, however, expand the scope of CWA jurisdiction beyond what has historically been covered, and it is consistent with the tests established by the Supreme Court in *Rapanos*.[212] Specifically, in the proposed rule, EPA and the Corps sought public comments on possible approaches to determine when "other waters" are similarly situated.[213] One possible approach to define such "other waters" as similarly situated is using hydrogeomorphic ("HGM") classification.[214] This would be an effective function-based approach to grouping wetlands and thus, to establishing when to aggregate effects for the CWA significant nexus test.[215]

IV. Applying "Similarly Situated"

Justice Kennedy's test from *Rapanos v. United States* relies on the notion that similarly situated lands can be identified and distinguished from lands that are not similarly situated.[216] A clearer, more concrete method of determining when lands are or are not similarly situated is needed to increase the efficiency of jurisdictional determinations.[217]

The 2007 Joint Guidance (the "2007 Guidance") issued by the Environmental Protection Agency (EPA) and the Army Corps of Engineers (the "Corps") has defined "similarly situated" as "all wetlands adjacent to the same

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[210] News Release, U.S. Envtl. Prot. Agency, EPA and Army Corps of Engineers Clarify Protection for Nation's Streams and Wetlands: Agriculture's Exemptions and Exclusions from Clean Water Act Expanded by Proposal (Mar. 25, 2014), *available at* http://yosemite.epa.gov/opa/admpress.nsf/3881d73f4d4aaa0b85257359003f5348/ae90dedd9595a02485257ca600557e30, *archived at* http://perma.cc/EP4G-Z3R7 [hereinafter EPA News Release]. The regulation was officially proposed on April 21, 2014. Definition of "Waters of the United States" Under the Clean Water Act, 79 Fed. Reg. 22188 (Apr. 21, 2014) (to be codified at 33 C.F.R. pt. 328).

[211] *See* EPA News Release, *supra* note 210 (quoting Assistant Secretary of the Army Jo-Ellen Darcy that, "[T]oday's rulemaking will better protect our aquatic resources, by strengthening the consistency, predictability, and transparency of our jurisdictional determinations.").

[212] Definition of "Waters of the United States" Under the Clean Water Act, 79 Fed. Reg. at 22188; *see Rapanos*, 547 U.S. at 739, 780; *SWANCC II*, 531 U.S. at 167, 172; *Riverside Bayview*, 474 U.S. at 134.

[213] Definition of "Waters of the United States" Under the Clean Water Act, 79 Fed. Reg. at 22190–91; EPA News Release, *supra* note 210.

[214] *See* Brinson, *supra* note 30, at 2, 19.

[215] *See id.* (aggregating wetlands with similar functions, as the HGM classification system does, would be an effective means of categorically determining when there is a significant nexus).

[216] *See* 547 U.S. 715, 780 (2006) (Kennedy, J., concurring).

[217] *See* Bruce Myers (moderator) et al., *Assessing Jurisdiction Under the New Clean Water Act Guidance*, 41 Envtl. L. Rep. 10,773, 10,774 (2011) (noting lower courts have struggled to determine what significant nexus means, and that the test is cumbersome to apply on a case-by-case basis).

tributary," which the agencies justify based on the notion that these wetlands will be "physically located in a like manner."[218] Although this approach incorporates the tendency for wetlands that are physically proximate to tributaries to be similar in function and use, an approach based specifically on ecological function would be more protective of the nation's waters and more accurately embody the purpose of the Clean Water Act (CWA).[219]

A. Confusion in Implementation

To properly implement the legislative intent of the CWA, the EPA and the Corps must continue to refine the meaning of "significant nexus" and how it should be applied.[220] Because phrases like "significant nexus" and "similarly situated" hold only a semantic meaning, ensuring that the language is properly applied has proved challenging.[221] Further, the terms provided by the courts differ from those used for classification or explanation by aquatic resource scientists,[222] resulting in unclear application by Corps field staff who must quickly assess whether an area falls under CWA jurisdiction.[223]

The 2007 Guidance, which was issued to clarify implementation of CWA jurisdiction, notes that flow characteristics and ecological functions are relevant to assessing the ecological relationship between tributaries and adjacent wetlands.[224] In determining whether a wetland falls under CWA purview, field staff use these characteristics for evaluating a significant nexus.[225] Ecological functions can vary but might include temperature moderation, carrying pollutants, retaining floodwaters, transferring nutrients and organic carbon, and providing habitat.[226] The agencies assess these factors to determine whether a tributary and adjacent wetland make a more than speculative or insubstantial contribution to the physical, chemical, and biological integrity of downstream navigable-in-fact waters.[227]

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[218] 2007 GUIDANCE, *supra* note 174, at 9.

[219] *See* James Murphy & Stephen M. Johnson, *Significant Flaws: Why the* Rapanos *Guidance Misinterprets the Law, Fails to Protect Waters, and Provides Little Certainty*, 15 SOUTHEASTERN ENVTL. L.J. 431, 451 (2007) (arguing the approach in the 2007 Guidance—defining similarly situated as wetlands adjacent to the same tributary—will reduce wetland areas subject to CWA jurisdiction).

[220] Downing et al., *supra* note 74, at 63; Bolger & Witte, *supra* note 23, at 8.

[221] *See* Downing et al., *supra* note 74, at 42–43 (noting the terms used to determine jurisdiction are legal concepts; they are not terms typically used by aquatic resource scientists).

[222] *Id.* at 43.

[223] *See id.* at 63.

[224] 2007 GUIDANCE, *supra* note 174, at 8.

[225] *Id.* at 9; WOMBLE ET AL., *supra* note 46, at 6.

[226] WOMBLE ET AL., *supra* note 46, at 6.

[227] *See Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring); 2007 GUIDANCE, *supra* note 174, at 10.

Similarly situated wetlands can also be defined categorically according to their functions in relation to adjacent tributaries and downstream navigable-in-fact waters.[228] Just as ecological functions are valuable for assessing the significant nexus of adjacent wetlands to traditional navigable waters,[229] they are also valuable for determining when wetlands should be aggregated together before their effect on traditional navigable waters is assessed.[230]

B. Applying the Hydrogeomorphic System to Define "Similarly Situated" in the Significant Nexus Test: The "HGM Approach"

The hydrogeomorphic ("HGM") scientific technique, which wetland scientists use to classify wetlands based on functionality, would be useful for determining which wetlands could be considered similarly situated for CWA jurisdiction, from a functional perspective.[231] The HGM classification system groups wetlands based on geomorphic and hydrologic features, while concentrating on water inputs and outputs.[232] Because this technique was specifically designed as a way to measure wetland functionality,[233] HGM classification

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[228] *See* JOHNSON, *supra* note 50, at viii, 3, 36 (explaining that characterizing landscapes by wetland function is useful and functional-based categories can be helpful for assessing cumulative impacts); Murphy & Johnson, *supra* note 219, at 450 (citing *Rapanos*, 547 U.S. at 780) (noting that Justice Kennedy's concurrence suggested that upon finding a significant nexus for a particular wetland, comparable wetlands in the same region could be presumed to also have a significant nexus).

[229] *See* 2007 GUIDANCE, *supra* note 174, at 9.

[230] *See Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring) (allowing implicitly for similarly situated to mean serving the same function, or similarly situated ecologically, because the significant nexus test focuses on functionality); JOHNSON, *supra* note 50, at 3, 40 (reasoning that because HGM classification categorizes based on function, the method would be an effective way to assess cumulative effects of wetland loss).

[231] *See* National Action Plan to Implement Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. 33,607, 33,609 (June 20, 1997) (providing uses of the information on wetland function from the HGM classification system); JOHNSON, *supra* note 50, at 3 (noting that evaluating wetlands in terms of their HGM classification could be a useful way to measure the cumulative losses of wetland functionality and thus cumulative effects of wetland losses); Craig, *supra* note 8, at 123 (citing *Rapanos*, 547 U.S. at 780) (reasoning that Justice Kennedy's test allows ecological connection and function to be the basis for categorically determining jurisdiction).

[232] NATURAL RES. CONSERVATION SERV., *supra* note 66, at 2. It can thus serve as a basis for assessing wetland function, because the physical basis for the categories is directly connected to wetland functionality. National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. at 33,609; *see* JOHNSON, *supra* note 50, at 2–3. Specifically, it divides wetlands into seven major classes, which are then further divided into subclasses as a means of grouping wetlands based on primary hydrologic influence. NATURAL RES. CONSERVATION SERV., *supra* note 66, at 3.

[233] National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. at 33,609.

could be an effective way to define similarly situated lands for CWA jurisdiction.[234]

The HGM classification system was designed to provide wetland functionality information as part of Section 404 of the CWA, which covers the permit review process for filling a wetland subject to CWA jurisdiction.[235] Part of this process requires analyzing alternatives to the proposed project and assessing mitigation projects.[236] Classifying wetlands enables the regulating agencies to determine the cost of an action versus the cost of an alternative when an individual would like to fill a wetland.[237]

Using HGM classification to determine similarly situated lands is consistent with Justice Kennedy's concurrence in *Rapanos*[238] and would result in more uniform determinations of CWA jurisdiction.[239] The 2007 Guidance suggested the use of ecological function and flow characteristics to establish a significant nexus.[240] Though it defined "similarly situated" as wetlands adjacent to the same tributary, an equally reasonable approach would be to rely on the ecological functions of these wetlands and their hydrologic connection.[241]

C. The HGM Approach is Consistent with Applicable Law

The function of a wetland in an ecosystem is a major determinant of whether and to what extent that wetland affects the chemical, physical, and biological integrity of navigable-in-fact waters.[242] Because the HGM approach

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[234] *See id.* (noting that this method is "adaptable to a variety of other regulatory, planning, management, and educational situations requiring the assessment of wetland functions"); CYLINDER ET AL., *supra* note 22, at 167–68 (predicting an increase in the use of the HGM classification system and wetland functional assessments and that these approaches will be incorporated into regular jurisdictional determinations in the future).

[235] National Action Plan to Implement the Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. 33,607, 33,609 (June 30, 1997); *see* Clean Water Act, 33 U.S.C. § 1344 (2012).

[236] 40 C.F.R. § 230.10(a) (2012); *see supra* note 59 and accompanying text.

[237] *See id.* § 230.10(a)(2); National Action Plan to Implement Hydrogeomorphic Approach to Assessing Wetland Function, 62 Fed. Reg. at 33,609.

[238] *See* 547 U.S. at 780*;* 2007 GUIDANCE, *supra* note 174, at 8–9; *infra* notes 254–266 and accompanying text.

[239] *See* Murphy & Johnson, *supra* note 219, at 453 (arguing that if the 2007 Guidance had allowed for similar regional wetlands to be jurisdictionally categorized once another similar wetland had been identified, field officials could apply one determination to all similar regional wetlands).

[240] 2007 GUIDANCE, *supra* note 174, at 9.

[241] *See id.* Because ecological relationships have already been established as a reasonable justification for defining significant nexus based on language from *Rapanos*, similarities based on ecological function and relationships would be reasonable for defining similarly situated. 547 U.S. at 780; *see* 2007 GUIDANCE, *supra* note 174, at 9; JOHNSON, *supra* note 50, at viii, 3, 36.

[242] *See* 2007 GUIDANCE, *supra* note 174, at 9.

classifies wetlands according to ecological function, the wetland classes can serve as an appropriate way to characterize wetlands as similarly situated when they are in the same class.[243] This interpretation of similarly situated is supported by the language and purpose of the CWA[244] and the language of Justice Kennedy's concurrence in *Rapanos*.[245]

1. The Purpose of the CWA Supports the HGM Approach

The purpose of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters," and thus, the subsequent goals and policies outlined by the statute should be interpreted consistently with that objective.[246] The definition of similarly situated provided by the 2007 Guidance limits the extent to which the CWA objective can be met because of its limiting effect on CWA jurisdiction.[247] By restricting similarly situated to only those wetlands adjacent to the same tributary, the guidance relies only on the geographic meaning of situated, rather than an ecological meaning.[248] Because the 2007 Guidance definition thus limits the wetlands that can be aggregated together,[249] and individual wetlands can have a substantial impact on downstream navigable waters,[250] this aspect of the guidance restricts the extent to which the goals of the CWA can be attained.[251]

Using an ecological test based on function to establish when wetlands are similarly situated would be more consistent with the CWA than limiting the analysis to only the current geographic approach.[252] Using the HGM classification system as functional groups, and relying on those groupings to indicate when wetlands are similarly situated within an ecosystem would be more con-

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[243] *See* NATURAL RES. CONSERVATION SERV., *supra* note 66, at 1.

[244] *See* 33 U.S.C. § 1251(a) (2012); *infra* notes 246–253 and accompanying text.

[245] *See Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring) (relying on ecological-based terms to establish a significant nexus by requiring the effect to be on the "chemical, physical, and biological integrity of other covered waters"); *infra* notes 254–266 and accompanying text.

[246] *See* 33 U.S.C. § 1251(a).

[247] *See* 2007 GUIDANCE, *supra* note 174, at 9; Murphy & Johnson, *supra* note 219, at 450–51.

[248] *See* 2007 GUIDANCE, *supra* note 174, at 9 (explaining the interpretation of similarly situated is reasonable because these wetlands are "physically located in a like manner").

[249] *See id.*

[250] MEYER ET AL., *supra* note 47, at 3; WOMBLE ET AL., *supra* note 46, at 26.

[251] *See* Murphy & Johnson, *supra* note 219, at 451–52 (reasoning that the agencies' failure to recognize the importance of aggregating impacts will reduce protection of waters, particularly those that individually have less substantial effects on navigable waters downstream).

[252] *See id.*

sistent with ecological realities, and would therefore better serve the purpose of the CWA.[253]

2. Justice Kennedy's Concurrence in *Rapanos* Supports the HGM Approach

Several of Justice Kennedy's statements in *Rapanos* suggest his intention to allow the aggregation of a broad spectrum of wetlands to best protect downstream navigable waters.[254] In criticizing the limitations of the plurality's test and its interpretation of the CWA, Justice Kennedy noted that the limitations on CWA jurisdiction were inconsistent with the purpose of the statute.[255] His test, which he found implicit in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (*SWANCC II*), was offered as an alternative that would adhere more strictly to that purpose.[256] His ecology-based jurisdictional test uses the specific language of the purpose of the CWA, thus ensuring that the scope of its results is as expansive as the goals of the Act.[257]

Justice Kennedy reasoned that, in order to achieve these goals, the appropriate test must not only reflect the purpose of the Act in its language, but also in its interpretation.[258] He noted that the purpose of CWA regulation with respect to wetlands is to safeguard the functions they serve in the ecosystem in relation to the integrity of other waters.[259] By citing to regulations promulgated by the Corps that provide important wetland functions, Justice Kennedy also acknowledged the relevance of wetland function in determining jurisdiction.[260] Given his emphasis on wetland functions with respect to their effects on other

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[253] *See* Craig, *supra* note 8, at 105, 106 (advocating an approach to CWA jurisdiction based on ecosystem function and ecosystem services).

[254] Murphy & Johnson, *supra* note 219, at 450; *see Rapanos*, 537 U.S. at 759, 777, 779–80 (Kennedy, J., concurring) (suggesting an intention to uphold the purpose of the CWA).

[255] *Rapanos*, 537 U.S. at 776.

[256] *See id.* at 779 (reasoning that jurisdiction depends on a significant nexus between the wetlands and traditional navigable waters to ensure that 'navigable' is given meaning, consistent with *SWANCC II* and *Riverside Bayview* and noting the nexus should be assessed in terms of the CWA's goals and purposes).

[257] *See* 33 U.S.C. § 1251(a) (2012) ("[T]o restore and maintain the chemical, physical, and biological integrity of the Nation's waters."); *Rapanos*, 537 U.S. at 780 (finding jurisdiction where wetlands "significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable'").

[258] *See Rapanos*, 537 U.S. at 779.

[259] *Id.* (offering examples of functions wetlands have served and the effects they have on other waters, according to regulations promulgated by the Corps to implement the CWA).

[260] *See id.* Justice Kennedy specifically incorporated a few functions from the regulations into his description of the rationale for the application of the CWA to wetlands. *Id.* Thus, by focusing on the function of a wetland to determine jurisdiction, the Corps can more adequately address the purposes of the CWA because the functions of wetlands can have such a critical impact on the downstream navigable-in-fact waters. *See id.* at 777, 779.

waters, the similarly situated language of the test should be interpreted in accordance with those principles.[261] As such, because similarly situated is part of the significant nexus test, it should be interpreted in light of the context in which the test was created.[262]

Justice Kennedy's mention of the Gulf of Mexico to illustrate the importance of protecting wetlands also implies that he meant for the language of the significant nexus test to be interpreted in accordance with ecological functions.[263] His reference to wetland functions in the context of CWA regulation illustrates his acceptance of wetland ecological function as a factor in establishing jurisdiction.[264]

Each of the seven wetland categories in the HGM system represents a different geologic location or setting where wetlands are likely to occur.[265] Whereas the current definition of similarly situated relies only on the physical proximity of wetlands to a tributary at a certain point in time, the HGM categories take into account the position of a wetland within the ecological and geological context, thereby incorporating the overall role of the wetland in the ecosystem into the significant nexus test.[266]

D. The HGM Approach Would Benefit the Environment

1. The HGM Approach Would Support a Uniform System for Determining Wetlands That Can Be Aggregated

Jurisdictional determinations for some vulnerable wetlands under the current scheme are made on a case-by-case basis.[267] This process is unduly time-consuming, if done accurately, because it can take years to understand the

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[261] *See* Murphy & Johnson, *supra* note 219, at 441 (citing *Rapanos*, 547 U.S. at 780) (Kennedy, J., concurring) (arguing that Justice Kennedy's concurrence reflected his understanding of the ecological connection between wetlands and larger, navigable-in-fact waters and that the functions he discussed should be analyzed when determining whether wetlands have a significant nexus).

[262] *See* Craig, *supra* note 8, at 131 (arguing that the significant nexus test encourages the use of ecosystem services); Murphy & Johnson, *supra* note 219, at 441 (giving the context of the purpose of the CWA as Justice Kennedy's background in developing this test).

[263] *See Rapanos*, 547 U.S. at 777 (Kennedy, J., concurring); Murphy & Johnson, *supra* note 219, at 450. This example demonstrated the role wetlands can play in preventing contamination of large water bodies, such as the Gulf of Mexico, through filtering polluted water that would otherwise flow into the rivers that drain into even larger water bodies. *See Rapanos*, 547 U.S. at 777.

[264] *See id.*

[265] *See* NATURAL RES. CONSERVATION SERV., *supra* note 66, at 4–5.

[266] *Compare* NATURAL RES. CONSERVATION SERV., *supra* note 66, at 3 (describing Riverine wetlands as characteristically occurring "in bottomlands and/or riparian areas, regardless of current connectivity to the channel"), *with* 2007 GUIDANCE, *supra* note 174, at 9 (reasoning similarly situated wetlands are determined by the physical location of those wetlands in relation to tributaries).

[267] *Rapanos*, 547 U.S. at 782; Murphy & Johnson, *supra* note 219, at 453.

physical, chemical, and biological connections between water bodies.[268] Because the Corps field staff does not have the time to conduct these extensive studies for each wetland they evaluate, their jurisdictional determinations may not rely on the soundest science.[269] This system could be improved by changing the jurisdictional designation of wetlands to be based on a categorical system like the HGM system.[270] Using a classification system to categorically determine when wetlands can be aggregated would streamline the process.[271]

2. The HGM Approach Would Allow for More Aggregation of Wetlands in Determinations of Significant Nexus, Thereby Expanding the Scope of CWA Jurisdiction

Defining similarly situated using the HGM classification system would incorporate more wetlands in CWA jurisdiction.[272] When wetlands are grouped together, a significant nexus could be assessed for the entire functional class of wetlands rather than an individual wetland or those physically adjacent to the same tributary.[273] When the effects of small wetlands can be aggregated because they are in the same HGM class, otherwise insignificant wetlands can be considered significant when grouped with their HGM class as a whole.[274] Bringing more wetlands under CWA jurisdiction is likely to benefit the quality of not only any adjacent, hydrologically-connected waters, but also larger water bodies that could not otherwise be protected.[275]

The test currently employed by the Corps to determine when the effects of wetlands can be aggregated[276] substantially limits the extent to which the potentially expansive effects of small wetlands can be considered in relation to

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[268] Downing et al., *supra* note 74, at 44 (noting that the relationship necessary for the significant nexus test is understood best upon years of study, whereas jurisdictional determinations must be made much quicker in practice).

[269] *See id.*

[270] *See* Murphy & Johnson, *supra* note 219, at 452.

[271] *See* Craig, *supra* note 8, at 130 (noting within the current understanding of the significant nexus test, a substantial amount of time and money is required to produce sufficient evidence); Murphy & Johnson, *supra* note 219, at 452, 456 (arguing that protecting broad categories of waters would mitigate administrative burdens of implementing the significant nexus test and stating that regulatory certainty would protect the environment and increase practicality of administration).

[272] *See* Craig, *supra* note 8, at 105; Murphy & Johnson, *supra* note 219, at 453.

[273] Murphy & Johnson, *supra* note 219, at 450.

[274] *See id.* at 452.

[275] *See Rapanos*, 547 U.S. at 777 (discussing the importance of CWA regulation of waters generally as well as wetlands specifically to protect large bodies of water); MEYER ET AL., *supra* note 47, at 3; WOMBLE ET AL., *supra* note 46, at 26.

[276] 2007 GUIDANCE, *supra* note 174, at 9 (defining similarly situated as strictly a geographic proximity to a tributary, rather than based on the wetland's role in the ecosystem).

others.[277] Scientific studies have demonstrated the significance of smaller streams and wetlands as collectively impactful because of the functions they have in the ecosystem.[278] A functional, ecological approach to CWA jurisdiction is needed to account for that impact, and to sufficiently protect small, geographically isolated wetlands and the watersheds that encompass them.[279]

CONCLUSION

Wetlands like those within the Chesapeake Bay watershed cannot be federally protected under the Clean Water Act (CWA) unless they come within its jurisdiction. The CWA applies only to areas that are "waters of the United States." With this vague description from Congress, the courts and the agencies charged with implementing the CWA—the Army Corps of Engineers (the "Corps") and the Environmental Protection Agency (EPA)—were left to flesh out a standard for determining jurisdiction. The "significant nexus" test established in *Rapanos v. U.S.* is now widely used, but the language of the test and the interpretation provided by the EPA and the Corps in their Joint 2007 Guidance limit the extent to which wetlands can be grouped and aggregated according to their ecological function in a watershed. Using the hydrogeomorphic classification system to establish when wetlands are similarly situated would allow aggregation of comparable wetlands in terms of ecological function and other geological factors. This method would be consistent with the ecology-based purposes Justice Kennedy referred to in his concurring opinion in *Rapanos*, and it would benefit the environment due to its efficiency and the effect of increasing the scope of CWA jurisdiction.

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[277] *See* Murphy & Johnson, *supra* note 219, at 452.

[278] *See, e.g.*, MEYER ET AL., *supra* note 47, at 3; WOMBLE ET AL., *supra* note 46, at 25; Bodie & Semlitsch, *supra* note 46, at 1130.

[279] *See* MEYER ET AL., *supra* note 47, at 3; WOMBLE ET AL., *supra* note 46, at 25.