THE REACH OF *RAICH*: IMPLICATIONS FOR LEGISLATIVE AMENDMENTS AND JUDICIAL INTERPRETATIONS OF THE CLEAN WATER ACT

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> Letting the days go by/water flowing underground . . . . Under the rocks and stones/there is water underground . . . . Same as it ever was . . . . Same as it ever was . . . . Same as it ever was . . . . [1]

I. INTRODUCTION

In 1972, Congress responded to the growing national water pollution problem by passing the Clean Water Act (CWA) in an effort to protect and maintain the quality of the nation's waters.[2] Since that time, courts, regulatory agencies, and Congress itself have struggled to interpret, apply, and define the CWA coherently and uniformly, particularly regarding its regulation of wetlands.[3] Within the judiciary, federal

* I am deeply grateful to Professor Bradford C. Mank for his helpful critique of an earlier draft. Any remaining flaws and errors are mine alone. I dedicate this article to Dave, partly because of his hydrogeologic expertise, but mostly because he's pretty much my soul mate.

1. TALKING HEADS, *Once in a Lifetime, on* REMAIN IN LIGHT (Sire Records 1980).

2. *See generally* Federal Water Pollution Control Act, 33 U.S.C. Ch. 26 (2000). The Federal Water Pollution Control Act was amended in 1977 and at that time was renamed the Clean Water Act (CWA). Donna Downing et al., *Navigating Through Clean Water Act Jurisdiction: A Legal Review*, 23 WETLANDS 475, 478 (2003). The CWA was enacted as a major legislative scheme to address the growing problem of water pollution; it is "the primary federal law protecting water quality." *Id*. at 476.

3. A major reason for the inconsistent interpretations and applications of the CWA to the regulation of wetlands is Congress's failure to consider whether or how federal jurisdiction over "waters of the United States" should be applied to wetlands. NAT'L. ACAD. OF SCI., WETLANDS: CHARACTERISTICS AND BOUNDARIES (1995), *available at* http://www.nap.edu/openbook/0309051347/html/44.html, at 45. When Congress passed the CWA in 1972, it did so

> without ever using the term "wetland" . . . . Congress gave [the U.S. Army Corps of Engineers] and the Environmental Protection Agency (EPA) authority to regulate water pollution in the "waters of the United States," but . . . failed to consider the application of that phrase to wetlands. . . . The legislative history did not discuss the concept of wetlands, but Congress did indicate that it would interpret the term "navigable waters" broadly.

Id. at 45–46.

Additional reasons for inconsistencies are rooted in the early history of federal legislation over wetlands on the one hand, *see* Downing et al., *supra* note 2, at 476–78; WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra*, at 44–45, and in the varying congressional uses of the term "navigable waters" on the other, *see* Downing et al, *supra* note 2; Bradford C. Mank, *The Murky Future of the Clean Water Act after* SWANCC: *Using a Hydrological Connection Approach to Saving the Clean*

courts at all levels have established varying limits on the reach of the CWA's jurisdiction over wetlands.[4] Similar inconsistencies surfaced in the regulatory agencies responsible for implementing the CWA. In the 1970s, for example, the Environmental Protection Agency (EPA) and the Army Corps of Engineers (Corps) promulgated conflicting regulatory interpretations of the extent of the Corps's jurisdiction over wetlands.[5] And when Congress amended the CWA in 1977, it not only failed to resolve existing ambiguities regarding the reach of the Corps's jurisdiction, it intensified the interpretive difficulties by defining "navigable waters" broadly as the "waters of the United States,"[6] without determining the extent to which either term applied to the regulation of wetlands.[7]

The pervasive inconsistency exhibited in all branches of the government regarding the CWA's application to wetlands has been exacerbated by the Supreme Court's distinction between wetlands that are not adjacent to navigable waters and those that are adjacent to navigable waters.[8] Other recent Supreme Court decisions interpreting

Water Act, 30 ECOLOGY L.Q. 811, 823–28 (2003). Federal regulation of wetlands began in the mid-nineteenth century, when Congress enacted a series of statutes, informally known as "swampland acts," which granted wetlands to the states to be drained and rendered fit for cultivation or habitation. WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra*, at 44. Most of the statutes described the ceded wetlands as "the swamp and overflowed land therein." *Id*. The Swamp Land Act of 1850 used different, though still vague, language to describe the wetlands as "wet and unfit for cultivation." *Id*. The Supreme Court determined as early as 1824 that Congress has the power to regulate "navigable waters" under its Commerce Clause powers. Gibbons v. Ogden, 22 U.S. 1 (1824). However, the federal government did not enact legislation to prevent obstruction of navigable waters until 1890, after the Court had determined that Congress had no common law power to regulate such obstructions. River and Harbor Act of 1890, Pub. L. No. 51-907, 26 Stat. 454 (1890) (RHA); Mank, *supra*, at 827. Less than a decade later, after the Supreme Court recognized congressional authority to regulate obstructions on non-navigable waters that interfere with navigable waters, United States v. Rio Grande & Irrigation Co., 174 U.S. 690 (1899), Congress enacted the 1899 Rivers and Harbors Act, adding the term "waters of the United States" to the language of the statute. Mank, *supra*, at 827. The RHA uses the phrases "navigable waters" and "waters of the United States" interchangeably, and at least one court has interpreted both terms "to extend only to the traditional navigable waters." Virginia S. Albrecht & Stephen M. Nickelsburg, *Could* SWANCC *Be Right? A New Look at the Legislative History of the Clean Water Act*, 32 ENVTL. L. REP. 11,042, 11,044 (2002) (citing United States v. Stoeco Homes, Inc., 498 F.2d 597, 608–11 (3d Cir. 1974)).

4. *See* discussion *infra* Part II.C.; Mank, *supra* note 3, at 837–43, 860–69; Downing et al., *supra* note 2, at 480, 484–87, 489–91. *See also* Jeremy A. Colby, SWANCC: *Full of Sound and Fury, Signifying Nothing . . . Much?,* 37 J. MARSHALL L. REV. 1017 (2004).

5. *See* discussion *infra* Part II.B.; Mank, *supra* note 3, at 833–34; Downing et al., *supra* note 2, at 480.

6. Mank, *supra* note 3, at 836; Downing et al., *supra* note 2, at 482.

7. WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra* note 3, at 52–54.

8. *Compare* United States v. Riverside Bayview Homes, 474 U.S. 121 (1985) (holding that non-navigable wetlands that are adjacent to navigable waters fall within the reach of the Corps's jurisdiction) *with* Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs (*SWANCC*), 531 U.S. 159 (2001) (holding that the Corps's jurisdiction does not extend to intrastate, non-navigable wetlands that

Congress's powers under the Commerce Clause have added to the confusion.[9] These decisions have resulted in a split among the lower courts as to the reach of Congress's commerce powers to regulate non-adjacent wetlands.[10]

This Comment proposes that the inconsistencies are best overcome by: (1) a scientifically based interpretive framework that will increase the predictability and uniformity of court decisions applying the CWA to wetlands regulations, and (2) an explicit expansion of the meaning of "channels of commerce" to include activities that substantially affect channels of commerce, irrespective of whether such activities substantially affect interstate commerce. Part II discusses the legislative and judicial histories of the CWA. Part III reviews Supreme Court decisions interpreting Congress's powers to regulate commerce, and federal judicial decisions interpreting the CWA within the context of contemporary Commerce Clause doctrine. Part IV discusses the utility of congressional power to protect wetlands as a class under the CWA in light of the nexus between pollution of navigable waters and wetlands as a potential source point for pollution. Part V concludes that Congress's commerce powers extend to regulating intrastate, isolated, non-navigable wetlands, and that Congress should grant explicit jurisdiction over such wetlands to the Corps.

Some commentators have argued that regulating wetlands is a channel-of-commerce power, as opposed to a substantial effects power,[11] and others have argued that courts should consider groundwater

are "isolated" from navigable waters).

9. *Compare* United States v. Lopez, 514 U.S. 549 (1995) (invalidating the Gun-Free Schools Act of 1990 as exceeding congressional power because the statute sought to regulate possession of guns within one thousand feet of schools, which was deemed a non-economic, intrastate activity too attenuated from interstate commerce) *and* United States v. Morrison, 529 U.S. 598 (2000) (striking down the Violence Against Women Act as beyond the scope of the Commerce Clause because the activity Congress sought to regulate was predominantly non-economic and only indirectly connected to interstate commerce) *with* Gonzales v. Raich, 125 S. Ct. 2195 (2005) (upholding federal authority under the Commerce Clause to regulate the use of purely intrastate, homegrown marijuana).

10. United States v. Rapanos, 376 F.3d 629, 638 (6th Cir. 2004) ("A minority of courts . . . limit the CWA to navigable waters and non-navigable waters that directly abut navigable waters. Conversely, the majority of courts have . . . [held] that while the CWA does not reach isolated waters having no connection with navigable waters, it does reach inland waters that share a hydrological connection with navigable waters." (internal citations omitted)). *See* discussion *infra* Part II.C.3.

11. Congress has authority under its commerce powers to regulate the instrumentalities of commerce, the channels of commerce, and activities that substantially affect interstate commerce. *See Lopez*, 514 U.S. at 559; Stephen M. Johnson, United States v. Lopez*: A Misstep but Hardly Epochal for Federal Environmental Regulation*, 5 N.Y.U. ENVTL. L.J. 33, 73 & n.195 (1996) (discussing several court decisions upholding the CWA section 404 provisions under a channels-of-commerce analysis "on the basis that: (1) wetlands prevent flooding and pollution of navigable waters; (2) navigable waters are channels of commerce; and (3) Congress can regulate purely intrastate activities to protect the channels of commerce"; citing United States v. Pozsgai, 999 F.2d 719, 733 (3d Cir. 1993); United States v. Byrd,

flow between wetlands and navigable surface waters as a sufficient nexus to invoke Congress's power.[12] This Comment seeks to combine and strengthen those arguments by adding scientific underpinnings to support them both, and by considering the implications of the Supreme Court's recent decision in *Gonzales v. Raich*,[13] which interprets the Commerce Clause as applied to a comprehensive scheme of legislation.[14]

II. LEGISLATIVE, REGULATORY, AND JUDICIAL HISTORY OF THE CLEAN WATER ACT

A. Content of the Clean Water Act and its Legislative History

Pursuant to its constitutional authority to regulate interstate and foreign commerce,[15] Congress enacted the Federal Water Pollution

609 F.2d 1204, 1210 (7th Cir. 1979); United States v. Ashland Oil & Transp. Co., 504 F.2d 1317, 1326–29 (6th Cir. 1974)); Matthew B. Baumgartner, Note, SWANCC*'s Clear Statement: A Delimitation of Congress's Commerce Clause Authority to Regulate Water Pollution*, 103 MICH. L. REV. 2137, 2152, n.88 (2005) (arguing that regulation of wetlands falls within Congress's power to regulate channels of commerce); *and* Susanne Goodson, Comment, *Charting a Course Through Non-navigable Waters Using the* SWANCC *Compass*, 78 TEMP. L. REV. 287, 320 (2005) (arguing that Congress's power to regulate injurious uses of channels of commerce extends to regulating discharge of pollutants into wetlands that have a hydrological connection to navigable waters).

12. *See* Brian Knutsen, *Asserting Clean Water Act Jurisdiction over Isolated Waters: What Happens After the* SWANCC *Decision*, 10 ALB. L. ENVTL. OUTLOOK 155, 191–92 (2005) (arguing that the Corps should promulgate regulations asserting jurisdiction over wetlands through groundwater hydrologic connections); Baumgartner, *supra* note 11, at 2137, 2152 n.88; *see also* Carey Schmidt, *Private Wetlands and Public Values: "Navigable Waters" and the Significant Nexus Test Under the Clean Water Act*, 26 PUB. LAND & RESOURCES L. REV. 97, 106–07 (2005); Thomas L. Casey, *Commentary: Reevaluating "Isolated Waters": Is Hydrologically Connected Groundwater "Navigable Water" Under the Clean Water Act?* 54 ALA. L. REV. 159, 161 (2002).

13. 125 S. Ct. 2195 (2005).

14. *Gonzales v. Raich* upheld federal authority under Congress's commerce power to regulate marijuana that is grown and consumed completely within state boundaries. *Id.* Included in its rationale for upholding the federal Controlled Substances Act (CSA) was the Supreme Court's finding that the CSA was a comprehensive legislative scheme from which intrastate activities could not be excised without undermining the very purpose of the statute:

> Title II of . . . the CSA . . . repealed most of the earlier antidrug laws in favor of a comprehensive regime to combat the international and interstate traffic in illicit drugs. . . . Given the enforcement difficulties that attend distinguishing between marijuana cultivated locally and marijuana grown elsewhere and concerns about diversion into illicit channels, we have no difficulty concluding that Congress had a rational basis for believing that failure to regulate the intrastate manufacture and possession of marijuana would leave a gaping hole in the CSA . . . . That the regulation ensnares some purely intrastate activity is of no moment. As we have done many times before, we refuse to excise individual components of that larger scheme.

Id. at 2203, 2209 (citation omitted).

15. U.S. CONST., art. I, § 8, cl. 3.

Control Act Amendments of 1972,[16] commonly known as the Clean Water Act (CWA).[17] The stated purpose of the CWA was to establish a comprehensive legislative and regulatory scheme to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[18] Congress asserted jurisdiction in the CWA over the nation's "navigable waters," which it defined broadly as "the waters of the United States, including the territorial seas."[19] The CWA does not specifically mention wetlands.[20] However, various congressional reports clearly indicate that the CWA was intended to reach all the "waters of the United States" and was not to be limited only to "navigable waters" as previous federal pollution controls had been.[21]

Congress delegated administrative authority jointly to the EPA and the Corps.[22] The EPA has regulatory control over all aspects of the CWA, including administration of the section 404 pollution discharge permit program, whereas the Corps's role is limited to co-administering section 404.[23] In administering section 404, the Corps must ensure that permit applicants comply with the EPA's substantive water-quality protection regulations.[24] Thus, the EPA has ultimate authority to veto the Corps's permitting decisions under section 404, with both agencies sharing enforcement responsibilities.[25]

B. Regulatory History of the Clean Water Act

1. Early Conflicting Interpretations of the Corps's Jurisdiction to Regulate Wetlands under 33 U.S.C. § 404

Despite their shared authority to administer the section 404 permitting program, the EPA and the Corps initially developed different interpretations of the meaning of "waters of the United States."[26] The EPA promulgated regulations in 1973 adopting a broad definition of the

16. Downing et al., *supra* note 2, at 478.

17. *Id*. ("[T]he FWPCA was substantially amended in 1977 and 1987 and, since that time, has generally been referred to as the Clean Water Act." (citing 33 U.S.C §§ 1251–1274 (2000)).

18. 33 U.S.C § 1251(a).

19. *Id.* § 1362(7).

20. WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra* note 3, at 45.

21. *Id*. at 46–47; Downing et al., *supra* note 2, at 479–80.

22. Downing et al., *supra* note 2, at 478.

23. *Id*. Section 404(a) of the CWA authorizes the Corps to issue permits "for the discharge of dredged or fill material into the navigable waters at specified disposal sites." 33 U.S.C. § 1344(a).

24. Downing et al., *supra* note 2, at 478.

25. *Id*.

26. Mank, *supra* note 3, at 832–34; Downing et al., *supra* note 2, at 480.

waters that fell within the scope of the CWA.[27] According to the EPA definition, "waters of the United States" encompassed:

> (1) All navigable waters of the United States;
> (2) Tributaries of navigable waters of the United States;
> (3) Interstate waters;
> (4) Intrastate lakes, rivers, and streams which are utilized by interstate travelers for recreational or other purposes;
> (5) Intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce; and
> (6) Intrastate lakes, rivers, and streams which are utilized for industrial purposes by industries in interstate commerce.[28]

Notably, the EPA's definition eliminated the requirement that waters actually be navigable to come within the scope of the CWA. The Corps, by contrast, adopted a significantly narrower definition in its 1974 regulations, limiting the jurisdictional scope of the CWA to: "those waters of the United States, which are subject to the ebb and flow of the tide, and are presently, or have been used in the past, or may be used in the future susceptible for use for purposes of interstate commerce."[29] The Corps thus initially limited its jurisdiction to actually or potentially navigable waters.[30]

2. Resolution of Agency Interpretations

Ultimately, the Corps broadened its definition to align with that of the EPA.[31] This expansion occurred in 1975 after the U.S. District Court for the District of Columbia, in *Natural Resources Defense Council v. Callaway*, ordered the Corps to issue regulations that would comply with the CWA's mandate to regulate "the nation's waters to the maximum extent permissible under the Commerce Clause of the Constitution."[32] As a result, the expanded definition did not limit jurisdiction to navigable waters. By 1977, the Corps had issued a final rule that specifically asserted jurisdiction over isolated wetlands and other waters that, if degraded or destroyed, could affect interstate commerce.[33]

27. 38 Fed. Reg. 13,528 (May 22, 1973).
28. *Id*.
29. 39 Fed. Reg. 12,115, 12,119 (Apr. 3, 1974).
30. *Id*.
31. 40 Fed. Reg. 31,320, 31,324 (July 25, 1975).
32. Natural Res. Def. Council v. Callaway, 392 F. Supp. 685, 686 (D.D.C. 1975).
33. Mank, *supra* note 3, at 835 (citing 42 Fed. Reg. 37,122, 37,144 (July 19, 1977)).

3. 1977 Amendments to the Clean Water Act

In subsequent legislative sessions in 1975 and 1977, members of both the House and the Senate, responding to the *Callaway* ruling, debated whether to confine the Corps's section 404 jurisdiction to actually or potentially navigable waters.[34] Congress considered a number of bills that would have restricted the Corps's jurisdiction, and although Congress amended the CWA in 1977, it rejected every amendment that would have limited the Corps's jurisdiction to waters that were navigable-in-fact or that could reasonably be made so.[35]

Congress's 1977 amendments retained the earlier definition of "navigable waters" without clarifying either its meaning or its jurisdictional scope.[36] With little new guidance for implementing section 404 in the 1977 amendments,[37] the EPA and the Corps have continued to assert extensive jurisdiction over several categories of waters: interstate navigable waters, including their tributaries and adjacent wetlands; and intrastate waters with the potential to affect interstate or foreign commerce, including their tributaries and adjacent wetlands.[38]

C. Judicial Decisions Interpreting the Corps's Jurisdiction over Wetlands

1. *United States v. Riverside Bayview Homes*

When it enacted the CWA, Congress explicitly stated its purpose: to restore the integrity of the nation's waters.[39] Unquestionably, Congress intended the CWA to be a comprehensive scheme for regulating the environmental quality of all of the waters of the United States, not just the navigable waters.[40] Less clear, however, was whether Congress intended the Corps to regulate waters, specifically wetlands, which were not surface tributaries of navigable waters but which were adjacent to

34. *Id*. at 836; Downing et al., *supra* note 2, at 482.

35. *See* Mank, *supra* note 3, at 836; Downing et al., *supra* note 2, at 482.

36. *Id*.

37. WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra* note 3, at 54.

38. Mank, *supra* note 3, at 836.

39. 33 U.S.C § 1251(a) (2000).

40. *See* Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs, 531 U.S. 159, 190 n.14 (Stevens, J. dissenting) ("'[T]he 1972 [FWPCA] exercised *comprehensive jurisdiction* over the *Nation's waters* to control pollution to the *fullest constitutional extent*.'" (quoting S. REP. NO. 95-370, at 75 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4326, 4400) (emphasis added by dissent)). *See also* Downing et al., *supra* note 2, at 479 ("'The Committee fully intends the term "navigable waters" to be given the broadest possible constitutional interpretation.'" (quoting H.R. REP. NO. 92-911, at 131 (1972))).

navigable waters.

In 1985, the Supreme Court's decision in *United States v. Riverside Bayview Homes* upheld the Corps's jurisdiction over discharges into non-navigable wetlands adjacent to navigable waters.[41] The Court considered the CWA's legislative history, recognized the importance that Congress placed on broad protection for water quality and aquatic ecosystems, and concluded that adjacent wetlands fall within the Corps's jurisdiction.[42] Noting that some adjacent wetlands may lack significant ecological connections to navigable waters, the Court nonetheless ruled that physical adjacency is sufficient to invoke the Corps's jurisdiction because in most cases, biological and hydrological connections do exist.[43]

After *Riverside Bayview Homes*, lower courts refined the extent of jurisdiction over non-navigable waters in the *Leslie Salt* cases,[44] in which the U.S. Court of Appeals for the Ninth Circuit upheld jurisdiction over manmade pits that had become seasonal ponds and habitats for migratory birds.[45] Similarly, in *Hoffman Homes v. Administrator*, the Seventh Circuit held that waters of the United States encompassed isolated waters that, if destroyed, could potentially affect interstate commerce, and that the presence of migratory birds provided a sufficient connection between a wetland and interstate commerce.[46]

41. 474 U.S. 121 (1985).

42. Downing et al., *supra* note 2, at 484; WETLANDS: CHARACTERISTICS AND BOUNDARIES, *supra* note 3, at 55. In a slightly different characterization, Professor Mank writes that the Court "emphasized the importance of hydrological and biological connections between wetlands and navigable waters in determining that adjacent wetlands are within in the scope of the Act." Mank, *supra* note 3, at 840.

43. Mank, *supra* note 3, at 840 ("[T]he *Riverside Bayview* decision suggests that hydrological and biological connections between non-navigable waters and navigable waters should be important in determining whether other non-navigable waters are within the scope of the Act.").

44. Leslie Salt Co. v. United States (*Leslie Salt I*), 700 F. Supp. 476 (N.D. Cal. 1980); Leslie Salt Co. v. United States (*Leslie Salt II*), 896 F.2d 354 (9th Cir. 1990); Leslie Salt v. United States (*Leslie Salt III*), 820 F. Supp. 478 (N.D. Cal. 1992); and Leslie Salt v. United States (*Leslie Salt IV*), 55 F.3d 1388 (9th Cir. 1995).

45. *Leslie Salt II*, 896 F.2d at 360. Finding no distinction between natural and artificial ponds, the Ninth Circuit reversed the lower court ruling, which had held that the Corps had no jurisdiction over the pits because they were manmade. *Id*. The Ninth Circuit also upheld the Corps jurisdiction over the pits as a legitimate use of congressional commerce powers because the pits were sufficiently connected to interstate commerce through their use by migratory birds and endangered species. *Id*.

46. 999 F.2d 256, 262 (7th Cir. 1993) (stating that wetlands are "vital to the well being of both humans and wildlife"). Both *Leslie Salt II* and *Hoffman Homes* upheld the Corps's implementation of its Migratory Bird "Rule" (MBR), which came into being in 1986, following a 1985 EPA legal memorandum asserting regulatory jurisdiction over "isolated" wetlands and other waters used as migratory bird habitats. Mank, *supra* note 3, at 842–43; Downing et al., *supra* note 2, at 483. The Corps's regulations define the term "waters of the United States" to include "waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie

In 2001, however, the Supreme Court decision in *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers* (*SWANCC*), overruled the Corps's jurisdiction where it rests solely on the so-called Migratory Bird Rule (MBR).[47] The *SWANCC* ruling also cast doubt on the application of *Riverside Bayview Homes*'s rationale to wetlands that are not adjacent to navigable waters.

2. *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*

SWANCC involved a consortium of Illinois municipalities that had purchased an abandoned mining site to convert into a landfill for nonhazardous solid waste disposal.[48] The consortium contacted the Corps to determine whether it needed a discharge permit under section 404(a) of the CWA.[49] The Corps found that ponds on the proposed landfill site were wetlands habitat for several species of migratory birds, and, after determining that it had jurisdiction, denied the permit.[50] The consortium challenged the Corps's decision on two grounds: first, that section 404(a) jurisdiction did not extend to "an abandoned sand and gravel pit in northern Illinois which provides habitat for migratory birds"; and, second, that Congress lacked constitutional authority under its Commerce Clause powers to reach such waters.[51]

The Court's *SWANCC* opinion invalidated the MBR, holding that the

potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce . . . ." 33 C.F.R. § 328.3(a)(3) (2006). In 1986, the Corps published a clarifying interpretation the scope of the section 404(a) permit program, stating that:

> [The] EPA has clarified that waters of the United States at 40 CFR 328.3(a)(3) also include the following waters:
>
> > a. Which are or would be used as habitat by birds protected by Migratory Bird Treaties; or
> > b. Which are or would be used as habitat by other migratory birds which cross state lines; or
> > c. Which are or would be used as habitat for endangered species; or
> > d. Used to irrigate crops sold in interstate commerce.

51 Fed. Reg. 41,206, 41,217 (Nov. 13, 1986).

47. 531 U.S. 159 (2001).

48. *Id.* at 162–63.

49. *Id*.

50. *Id*. at 164. The Corps's decision was based upon several findings: (1) that the landfill proposal was not the least environmentally damaging or most practicable approach for disposing nonhazardous waste; (2) that the risk of leaks into the public's supply of drinking was unacceptably high given SWANCC's failure to appropriate adequate funding for remediation; and (3) the project posed unmitigatable impact upon "area-sensitive" species. *Id*. at 165.

51. *Id*. at 162.

CWA granted the Corps jurisdiction to regulate "navigable waters" and that the definition of that term does not include "isolated" wetlands used by migratory birds.[52] The Court concluded that the Corps had, therefore, exceeded its statutory authority by asserting jurisdiction on the basis of the MBR.[53]

Expressing concern about preserving the traditional role of the states to regulate intrastate, non-navigable waters, the *SWANCC* majority interpreted "navigable" to mean Congress's "traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made."[54] Whether congressional regulation under the Commerce Clause permissibly extends to non-navigable, non-adjacent wetlands remains an open question, as the Court declined to reach the constitutional question.[55]

The Court did not clearly identify which non-navigable waters the CWA's jurisdiction reaches.[56] What little guidance the *SWANCC* decision does provide rests on the Court's limited discussion of the required relationship between wetlands and "navigable waters," which the Court, relying on its *Riverside Bayview Homes* decision, held to be a "significant nexus."[57] With no legislative or regulatory definition of "significant nexus" and with no clear guidance from the Court, lower courts have established varying standards for determining whether a given wetland has the required connection to navigable waters.[58]

52. *Id*. at 171–72.

53. *Id*. at 174.

54. *Id*. at 172, 174. Importantly, "[t]he Court interpreted the Conference Committee's language extending the Act's jurisdiction to require the broadest possible constitutional authority over traditional navigable waters and not the broadest jurisdiction under the Commerce Clause." Mank, *supra* note 3, at 847.

55. *SWANCC*, 531 U.S. at 174.

56. Mank, *supra* note 3, at 847.

57. *SWANCC*, 531 U.S. at 167. The Court's reference to *Riverside Bayview Homes* in *SWANCC* did nothing more than establish "significant nexus" as the standard for determining whether the Corps has jurisdiction to regulate a particular wetland. Neither *Riverside Bayview Homes* nor *SWANCC* attempted to define "significant nexus."

58. *See*, *e.g*., Rice v. Harken Exploration Co., 250 F.3d 264, 271 (5th Cir. 2001) (construing language in Oil Pollution Act identical to language in CWA and finding that adjacency alone does not confer jurisdiction; an adjacent body of water need only be "sufficiently linked" to the "navigable waters"); Treacy v. Newdunn Assocs., 344 F.3d 407, 416 (4th Cir. 2003) (finding that a man-made ditch running beneath an interstate highway qualified as a "tributary" that met the significant nexus requirement and stating that inclusion of "intrastate waters that have *nothing* to do with navigable or interstate waters" would expand "the statutory phrase 'waters of the United States' beyond its definitional limit" (internal quotation marks and citation omitted)). *Compare* United States v. RGM, 222 F. Supp. 2d 780 (E.D. Va. 2002) (finding that wetlands connected to navigable waters through downstream flow of water through "drainage ditches and ephemeral streams" do not fall within Corps's jurisdiction) *with* United States v. Buday, 138 F. Supp. 2d 1282 (D. Mont. 2001) (finding that a non-navigable tributary and surrounding wetlands were "waters of the United States" even though the

3. Post-*SWANCC* Decisions Interpreting the Corps's Jurisdiction over Wetlands

Some courts have adopted a broad interpretation of *SWANCC*.[59] Among such decisions is *Rice v. Harken Exploration Co*.[60] According to the Fifth Circuit in *Rice*, transport of pollutants from land areas to navigable waters through groundwater flow does not meet the significant nexus test.[61] Despite "significant evidence" that defendants' oil discharges onto the land had seeped downward and polluted the subsurface water, the court refused to find a significant nexus with navigable waters where the land had "only an indirect, remote, and attenuated connection [through groundwater flow] with an identifiable body of 'navigable waters.'"[62]

In 2003, the Fifth Circuit refined its interpretation of *SWANCC* in another case, *In re Needham*, which construed both the CWA and the Oil Pollution Act (OPA).[63] According to the *Needham* court, non-navigable, non-adjacent tributaries to navigable waters are not subject to regulation under the CWA or the OPA.[64] In other words, a non-

tributary did not connect with navigable waters for at least 235 miles); United States v. Deaton, 332 F.3d 698 (4th Cir. 2003) (finding that that the Corps properly asserted jurisdiction over wetlands adjacent to, and draining into, a roadside ditch whose waters flow through several non-navigable tributaries to a navigable river); United States v. Rapanos, 339 F.3d 447, 449, 453 (6th Cir. 2003) (finding a significant nexus sufficient to justify jurisdiction where wetlands were adjacent to a manmade drain which flows into a creek and ultimately into a navigable river between eleven and twenty miles from the wetlands); Carabell v. United States, 391 F.3d 704, 710 (6th Cir. 2004) (finding a significant nexus between wetlands adjacent to non-navigable ditch which drained "one way or another" into tributaries of navigable waters), *vacated and remanded*, 126 S. Ct. 2208 (2006).

59. *See In re* Needham, 354 F.3d 340, 345–46 (5th Cir. 2003) (requiring true adjacency or a "significant measure of proximity" to navigable waters); *RGM Corp.*, 222 F. Supp. 2d 780 (requiring actual adjacency to navigable waters and specifically rejecting Corps jurisdiction through hydrological connection between wetlands and navigable waters via tributary); FD & P Enters., Inc. v. U.S. Army Corps of Eng'rs, 239 F. Supp. 2d 509, 516 (D.N.J. 2003) (hydrological connection is insufficient to confer CWA jurisdiction over wetlands).

60. 250 F.3d 264. In *Rice*, the Fifth Circuit construed the Oil Pollution Act (OPA), which regulates the clean-up of oil discharges in "navigable waters."

> The legislative history of the OPA and the textually identical definitions of 'navigable waters' in the OPA and the CWA strongly indicate that Congress generally intended the term 'navigable waters' to have the same meaning in both the OPA and the CWA. Accordingly, the existing case law interpreting the CWA is a significant aid in our present task of interpreting the OPA.

Id. at 267–68.

61. *Id*.

62. *Id*. at 272.

63. 354 F.3d 340.

64. *Id*. at 345–46 ("[Under *SWANCC*, t]he CWA and the OPA are not so broad as to permit the federal government to impose regulations over 'tributaries' that are neither themselves navigable nor truly adjacent to navigable waters.").

navigable tributary must be adjacent to a navigable body of water to fall within the Corps's jurisdiction.[65] However, neither the CWA nor the OPA defines the term "adjacent."[66] The *Needham* court, construing "adjacent" as requiring "a significant measure of proximity,"[67] noted that, "including all 'tributaries' as 'navigable waters' would . . . extend [jurisdiction] . . . beyond the limits set forth in *SWANCC*."[68]

Courts in most circuits, however, have applied *SWANCC* more narrowly, construing the Supreme Court's holding to apply only to isolated, intrastate, non-navigable waters, and have upheld the Corps's jurisdiction over non-navigable tributaries to navigable waters and wetlands adjacent to navigable waters and their non-navigable tributaries.[69] For example, the Fourth Circuit, in *United States v. Interstate General Co.*, stated that *SWANCC* did not eliminate the Corps's jurisdiction over wetlands that were adjacent to non-navigable tributaries to navigable waters.[70] Instead, according to the Fourth Circuit, "The only clear change in law made by *SWANCC*" is the restriction on "the Corps's jurisdiction over an *isolated* intrastate body of water."[71] In 2003, another Fourth Circuit case, *United States v. Deaton*, further held that direct adjacency to navigable waters is not

65. *Id*.

66. *Id.* at 347 n.12.

67. *Id*.

68. *Id*.

69. *See*, *e.g*., Treacy v. Newdunn Assocs., LLP, 344 F.3d 407 (4th Cir. 2003); United States v. Deaton, 332 F.3d 698 (4th Cir. 2003); United States v. Rapanos, 339 F.3d 447 (6th Cir. 2003); United States v. Krilich, 303 F.3d 784 (7th Cir. 2002); United States v. Interstate Gen. Co., 39 F. App'x 870 (4th Cir. 2002); Headwaters, Inc. v. Talent Irrigation Dist., 243 F.3d 526 (9th Cir. 2001); United States v. Rueth Dev. Co., 335 F.3d 598 (7th Cir. 2003); Cmty. Ass'n for Restoration of the Env't v. Henry Bosma Dairy, 305 F.3d 943 (9th Cir. 2002); United States v. Lamplight Equestrian Ctr., No. 00-C-6486, 2002 WL 360652 (N.D. Ill. Mar. 8, 2002); Colvin v. United States, 181 F. Supp. 2d 1050 (C.D. Cal. 2001); United States v. Buday, 138 F. Supp. 2d 1282 (D. Mont. 2001); Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169 (D. Idaho 2001); United States v. Adam Bros. Farming, Inc., 369 F. Supp. 2d 1180 (N.D. Cal. 2002); Cal. Sportfishing Prot. Alliance v. Diablo Grande, Inc., 209 F. Supp. 2d 1059 (E.D. Cal. 2002); Aiello v. Town of Brookhaven, 136 F. Supp. 2d 81 (E.D.N.Y. 2001); Carabell v. U.S. Army Corps of Eng'rs, 391 F.3d 704 (6th Cir. 2004), *vacated and remanded*, 126 S. Ct. 2208 (2006), United States v. New Portland Meadows, Inc., No. 00-507-AS, 2002 WL 31180956 (D. Or. Sept. 9, 2002); United States v. Dyer, No. 00-11013-NG (D. Mass. Mar. 12, 2003); N.C. Shellfish Growers Ass'n v. Holly Ridge Assocs., 278 F. Supp. 2d 654 (E.D.N.C. 2003).

70. *Interstate Gen. Co.*, 39 F. App'x. 870 (upholding the Corps's jurisdiction to regulate wetlands based on 33 C.F.R. § 328.3(a)(1) (2006), which asserts jurisdiction over "[a]ll waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;" § 328.3(a)(5), which asserts jurisdiction over "[t]ributaries of waters identified in paragraph[ ] (a)(1) . . . of this section"; and § 328.3(a)(7), which asserts jurisdiction over "[w]etlands adjacent to waters (other than waters which are themselves wetlands) identified in paragraph[ ] (a)(1) . . . of this section").

71. *Id.* at 874.

required for the Corps to assert jurisdiction over wetlands.[72]

The Eastern District of North Carolina in *North Carolina Shellfish Growers Association v. Holly Ridge Associates*, applying the holding of *Deaton*, likewise held that wetlands need not be directly adjacent to navigable waters to fall within the Corps's regulatory authority.[73] Rather, a sufficient nexus exists for CWA jurisdiction where wetlands are "adjacent to a non-navigable tributary of a traditional navigable water . . . ."[74]

Similarly, the Sixth Circuit has held that the CWA extends to wetlands with a hydrological connection to navigable waters even where the wetlands do not directly abut navigable waters.[75] *United States v. Rapanos* involved facts similar to those in *Deaton* in that the wetlands at issue in *Rapanos* drained into a ditch whose waters passed through other non-navigable watercourses before ultimately reaching navigable waters.[76] Relying on the hydrological connection between the wetlands and navigable waters, the court rejected the argument that the *SWANCC* decision limited the reach of the CWA to "only [those] wetlands directly abutting navigable water."[77] The Sixth Circuit broadened its hydrological connection test slightly in *Carabell v. United States*, finding a significant hydrological nexus sufficient to support CWA jurisdiction where a man-made barrier served as the sole separation between wetlands and a non-navigable ditch that flowed into tributaries of navigable waters.[78]

72. *Deaton*, 332 F.3d at 712–13 (upholding the Corps's interpretation of the CWA as granting jurisdiction over a roadside ditch whose waters flow through a number of non-navigable watercourses before reaching a navigable waterway).

73. *N.C. Shellfish Growers Ass'n*, 278 F. Supp. 2d at 674.

74. *Id.* ("Wetlands need not be directly adjacent to an open body of navigable water to be 'inseparably bound up with' navigable waters. Instead, where bodies of water are hydrologically connected, discharges into wetlands adjacent to a non-navigable tributary of a navigable water can move downstream, degrading the quality of the navigable water.").

75. United States v. Rapanos (*Rapanos I*), 339 F.3d 447 (6th Cir. 2003). *Rapanos I* concerned a criminal conviction for the discharge of pollutants into wetlands without obtaining the required permit. *Id.* The government also filed civil suit against the defendant on the same facts as those in *Rapanos I*. In the civil case, *United States v. Rapanos* (*Rapanos II*), 376 F.3d 629, (6th Cir. 2004), *vacated and remanded*, 126 S. Ct. 2208 (2006), the Sixth Circuit upheld the trial court's judgment that CWA jurisdiction did not require direct abutment between wetlands and navigable waters where the intervening non-navigable waters into which the wetlands drained were hydrologically connected to navigable waters.

76. *Rapanos I*, 339 F.3d at 452.

77. *Id*. at 453.

78. Carabell v. U.S. Army Corps of Eng'rs, 391 F.3d 704, 708–09 (6th Cir. 2004) ("Because the wetlands on the Carabells' property are separated from a tributary of 'waters of the United States' only by a man-made berm or barrier, they are considered 'adjacent wetlands' under § 328.3(a)(7). As such, the wetlands at issue in this case fall within the jurisdiction of the Corps for purposes of the CWA."), *vacated and remanded,* 126 S. Ct. 2208 (2006).

Some courts have gone even further, finding CWA jurisdiction where groundwater, rather than surface water, serves as the non-navigable tributary to navigable waters.[79] The U.S. District Court for the District of Idaho held in *Idaho Rural Council v. Bosma* that CWA jurisdiction includes groundwater with a hydrological connection to surface water.[80] The Northern District of California, meanwhile, noted in *Northern California River Watch v. City of Healdsburg* that *SWANCC* did not impose any hydrologic-connection rule for adjacent wetlands and waters, let alone a surface hydrologic connection requirement.[81] If wetlands are not adjacent, then they must serve as a tributary to navigable waters, and, according to the Northern District of California, a hydrological connection through groundwater flow satisfies this condition.[82]

Prior to *SWANCC*, lower courts accorded deference, fairly uniformly, both to congressional jurisdiction to regulate under the CWA and to the agencies administering section 404 of the CWA.[83] When the Rehnquist Court began curtailing judicial deference to legislation enacted under Congress's Commerce Clause powers in the mid-1990s,[84] the Court likewise provided the groundwork for eliminating the Corps's

79. Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169, 1180 (D. Idaho 2001) ("Congress's decision not to comprehensively regulate groundwater as part of the CWA, does not require the conclusion that Congress intended to exempt ground water from all regulation—particularly under circumstances where the introduction of pollutants into the groundwater adversely affects adjoining surface waters. In short, the interpretive history of the CWA supports the unremarkable proposition with which all courts agree—that the CWA does not regulate 'isolated/nontributary groundwater' which has no affect [sic] on surface water." (citing Wash. Wilderness Coal. v. Hecla Mining Co., 870 F. Supp. 983, 990 (E.D. Wash. 1994))).

80. *Id*. ("[T]he CWA extends federal jurisdiction over groundwater that is hydrologically connected to surface waters that are themselves waters of the United States.").

81. No. C01-04686WHA, 2004 WL 201502, at *9 (N.D. Cal. Jan. 23, 2004) ("Once wetlands are found to be adjacent to a river actually navigable, there is no need to investigate whether the wetlands are interconnected by surface or groundwaters.").

82. *Id*. at *12. The Eastern District of California likewise recognizes a hydrological connection through groundwater, even where the underground water flows in part through a man-made pipe. Cal. Sportfishing Prot. Alliance v. Diablo Grande, Inc. 209 F. Supp. 2d 1059, 1075–76 & n.8 (E.D. Cal. 2002) ("The fact that the waters of Salado Creek flow underground, partially through a pipe, does not make them 'groundwater' outside the jurisdiction of the Act [nor does it create a hydrological disconnect.] Even if the underground portion of Salado Creek were characterized as 'groundwater,' that fact alone would not prevent the water from being a 'navigable water' under the Clean Water Act." (quoting, with approval, *Bosma,* 143 F. Supp. 2d at 1180)).

83. *See supra* notes 44–46 and accompanying text (discussing the *Leslie Salt* and *Hoffman Homes* cases).

84. United States v. Lopez, 514 U.S. 549 (1995); United States v. Morrison, 529 U.S. 598 (2000). Although *SWANCC* declined to reach the constitutional question, reaching its holding instead on the basis of statutory construction, the Court's rationale conveys concern that if Congress had clearly given the Corps authority to reach isolated, intrastate wetlands, such grant of authority would have exceeded Congress's Commerce Clause power.

jurisdiction over intrastate, isolated wetlands, beginning with *SWANCC*.

III. JUDICIAL DECISIONS INTERPRETING THE COMMERCE CLAUSE

A. Supreme Court Decisions Prior to United States v. Lopez

For more than five decades, the twentieth-century judiciary accorded great deference to federal legislation regulating purely intrastate matters enacted pursuant to congressional authority to regulate interstate commerce.[85] The 1937 Supreme Court case *NLRB v. Jones & Laughlin Steel Corp.* was the first major case to expand commerce power authority to include activities that have a "serious effect on interstate commerce."[86] The Court's deference to legislative determinations of which intrastate activities are regulable under the Commerce Clause continued unabated for more than fifty years.[87]

B. Supreme Court Decisions in United States v. Lopez *and* United States v. Morrison

In 1995, however, the Court's decision in *United States v. Lopez* effectively ended the long reign of judicial deference.[88] *Lopez* recognized three areas in which Congress may exercise its commerce powers: (1) channels of commerce, (2) instrumentalities of commerce, and (3) activities that substantially affect commerce.[89] The *Lopez* Court invalidated the Gun-Free School Zones Act, ruling that Congress had exceeded its Commerce Clause authority by failing to make adequate

85. Federal legislation enjoyed judicial deference in a variety of contexts, including, for example, agriculture, labor and employment, and civil rights. In *Wickard v. Filburn,* 317 U.S. 111 (1942), the Court upheld congressional authority to regulate individual intrastate wheat production and homegrown consumption that cumulatively may substantially affect prices on the interstate commercial wheat market. The Court, in *United States v. Darby*, 312 U.S. 657 (1941), upheld Congress's power to prohibit interstate shipments of lumber that had been manufactured intrastate under working conditions that failed to comply with federal Fair Labor Standards Act (FLSA). In *Garcia v. San Antonio Metropolitan Transit Authority,* 471 U.S. 1049 (1985), the Court upheld the FSLA's overtime and minimum-wage requirements as applied to the state employees, finding that the FSLA did not violate state sovereignty. In a 1964 civil rights case, *Katzenbach v. McClung*, 379 U.S. 294 (1964), the Court held that an intrastate restaurant whose food was purchased primarily from in-state sources, and by in-state consumers, was subject to federal anti-discrimination regulation because the cumulative effects of racial discrimination by intrastate-owned restaurants had a direct and adverse impact on interstate commerce.

86. 301 U.S. 1, 41 (1937).

87. From 1937 until *Lopez,* 514 U.S. 549, the Supreme Court invalidated no federal legislation based upon Congress's commerce powers.

88. *Lopez*, 514 U.S. 549.

89. *Id*.

findings on the substantial effects that possession of a hand gun within one thousand feet of a school has on interstate commerce.[90] Futher, the Court held that absent congressional findings, such a link was too attenuated to uphold the legislation.[91]

The Supreme Court continued to exercise heightened review of Commerce Clause legislation in 2000, when it decided *United States v. Morrison*.[92] In *Morrison*, the Court invalidated the provision of the Violence Against Women Act that conferred a private cause of action to victims of sexual violence.[93] Although the Court acknowledged that Congress had made "numerous findings regarding the serious impact of gender-motivated violence on victims and their families," the Court concluded that the substantial effects on interstate commerce of the activity Congress sought to regulate were insufficiently connected to uphold federal regulation.[94] The Court thus found the law to be an invalid exercise of Congress's commerce power.[95]

Both *Lopez* and *Morrison* concerned the exercise of congressional commerce powers under the substantial effects test. These decisions laid the groundwork for the Court's curtailment of the scope of the CWA, under which jurisdiction is frequently asserted on the basis of substantial effects on interstate commerce. The Court signaled its willingness to begin such curtailment in *SWANCC*, even though the holding itself did not rest on constitutional grounds.[96]

The Court's refusal to reach the constitutional question in *SWANCC* has not only resulted in inconsistent application of the CWA in the lower

90. *Id*.

91. *Id*.

92. United States v. Morrison, 529 U.S. 598 (2000).

93. *Id*. Congress, in apparent response to the Court's concerns about the lack of legislative findings to support the Gun-Free School Zones Act, provided significant evidence of the relationship between violence against women and its effects on interstate commerce. *Id*. at 628–34 (Souter, J. dissenting). Nevertheless, the Court found the law to be an invalid exercise of Congress's commerce power.

94. *Id*. at 599.

95. *Id*.

96. Although the Court decided *SWANCC* on the narrow issue of the Corps's lack of delegated authority to regulate intrastate wetlands on the basis of the Migratory Bird Rule, the decision's dicta clearly indicate that the Court has serious doubts about the constitutionality of Congress's authority to regulate intrastate, "isolated" wetlands. Importantly, the Court framed its discussion of the CWA as a land-use regulation, rather than an environmental regulation. By framing the CWA as a land-use issue, the Court more clearly implicates federalism concerns, as land-use controls clearly fall within traditional state powers. However, a prior Supreme Court case, *California Coastal Commission v. Granite Rock Co.*, distinguishing between land use controls and environmental regulations, noted that, "land use planning . . . chooses particular uses for the land; environmental regulation . . . requires only that, however the land is used, damage to the environment is kept within prescribed limits." 480 U.S. 572, 587 (1987). Thus, environmental regulations do not so clearly fall within traditional state powers.

courts,[97] but, particularly after the Court's ruling in *Gonzales v. Raich*, it has also left open the possibility for a Supreme Court ruling affirming Congress's power to regulate intrastate, "isolated" wetlands.[98] Because the Court did not decide the constitutional question, the door remains open for the government to argue that the CWA's jurisdiction over wetlands is a valid exercise of its commerce powers because such jurisdiction rests upon Congress's authority to regulate the channels of commerce and activities that substantially affect the channels of commerce, not upon its authority to regulate activities that substantially affect interstate commerce. The difference is substantive, as the Supreme Court has long recognized that congressional authority to regulate the channels of commerce extends to protecting them from misuse.[99]

C. Congressional Regulation of Wetlands Under its Channels of Commerce Power

That Congress has authority to regulate the channels of interstate commerce forms a well-established principle of Commerce Clause jurisprudence.[100] Importantly, the power to regulate channels of commerce does not extend beyond the power to regulate activities affecting the suitability of a channel's use for transporting goods or persons in interstate commerce.[101] Subsumed under Congress's channels-of-commerce powers is the authority to regulate activities that misuse or harm interstate channels of commerce,[102] including navigable

97. *See supra* Part II.C.3.

98. Concededly, the numerical majority in *SWANCC* will probably not shift as a result of subsequent Commerce Clause jurisprudence. Nevertheless, the rationale of the Court's 2005 decision *Gonzales v. Raich*, which upheld the Controlled Substances Act as applied to purely intrastate grown and consumed marijuana as a valid exercise of Congress's commerce powers, reasserts, to some extent, pre-*Lopez* deference to statutes enacted under Congress's Commerce Clause authority.

99. United States v. Deaton, 332 F.3d 698, 706–07 (4th Cir. 2003) ("Congress's power over the channels of interstate commerce, unlike its power to regulate activities with a substantial relation to interstate commerce, reaches beyond the regulation of activities that are purely economic in nature. The power to regulate channels of interstate commerce allows Congress to make laws that protect the flow of commerce." (citing Heart of Atlanta Motel, Inc. v. United States, 379 U.S. 241 (1964) and United States v. Darby, 312 U.S. 100 (1941))).

100. United States v. Lopez, 514 U.S. 549, 561 (1995). Channels of commerce may be defined as the routes used for transporting goods and persons across state lines, and they include highways, railroads, navigable waters, and airspace, as well as telecommunications networks and national securities markets. United States v. Ballinger, 395 F.3d 1218, 1225–26 (11th Cir. 2005).

101. United States v. Thorson, No. 03-C-0074-C, 2004 WL 737522, at *1 (W.D. Wis. Apr. 6, 2004).

102. Caminetti v. United States, 242 U.S. 470, 491 (1917) ("[T]he authority of Congress to keep the channels of interstate commerce free from immoral and injurious uses has been frequently

waters.[103] Further, Congress's power to regulate channels of interstate commerce may be used to reach intrastate, noneconomic activities that misuse or harm channels of commerce.[104] Although it is unclear why more courts have not analyzed the CWA under a channels-of-commerce approach, courts in at least three circuits have done so in the past three years,[105] perhaps reflecting a nascent trend.

The first court to use the channels-of-commerce analysis to determine Congress's authority to regulate the discharge of pollutants into wetlands was the Fourth Circuit in *United States v. Deaton*, in 2003.[106] According to the *Deaton* court, Congress may use its authority over the channels of commerce to prohibit "the use of navigable waters as dumping grounds for fill material."[107] Federal regulation of non-navigable waters falls within Congress's channels-of-commerce power over navigable waters when such "regulation is necessary to achieve [c]ongressional goals in protecting navigable waters."[108]

In 2004, a federal district court in the Seventh Circuit relied on the *Deaton* court's channels-of-commerce analysis to uphold CWA jurisdiction over non-navigable wetlands that were not adjacent to navigable waters.[109] In *United States v. Thorson*, the U.S. District Court for the Western District of Wisconsin specifically rejected the argument that Congress enacted the CWA pursuant to its authority to regulate activities that substantially affect interstate commerce.[110] In fact, the *Thorson* court interpreted the Supreme Court's construction of the term "navigability" in *SWANCC* as indicating that the Supreme Court

sustained."); Perez v. United States, 402 U.S. 146, 150 (1971) (Congress may regulate "the use of channels of interstate . . . commerce which Congress deems are being misued.").

103. *Deaton*, 332 F.3d at 707 ("[T]here is no reason to believe that Congress has less power over navigable waters than over other interstate channels such as highways, which may be regulated to prevent their 'immoral and injurious use[ ].'" (quoting *Caminetti*, 242 U.S. at 491)).

104. *Ballinger*, 395 F.3d at 1226 ("[C]ongressional power to regulate the channels and instrumentalities of commerce includes the power to prohibit their use for harmful purposes, even if the targeted harm itself occurs outside the flow of commerce and is purely local in nature.").

105. Courts in the First, Fourth, and Seventh Circuits have found CWA jurisdiction over wetlands under a channels-of-commerce analysis. *See* United States v. Johnson, 437 F.3d 157 (1st Cir. 2006); *Deaton*, 332 F.3d 698; *and Thorson*, 2004 WL 737522.

106. *Deaton*, 332 F.3d at 708 (upholding federal regulation of non-navigable tributaries of navigable waters as a constitutional exercise of Congress's authority to regulate channels of commerce).

107. *Id*. at 707.

108. *Id*. (recognizing that tributaries need not themselves be navigable to transport pollutants that degrade water quality to navigable waters downstream).

109. *Thorson*, 2004 WL 737522, at **16–17 (relying on *SWANCC*'s construction of the term "navigable" in the CWA to conclude that the Supreme Court "has indicated that it believes that the Act was enacted pursuant to Congress's channels of commerce authority." (quoting Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs (*SWANCC*), 531 U.S. 159, 172 (2001))).

110. *Id*. at *17.

accepted the notion that Congress enacted the CWA under its authority to regulate the channels of commerce.[111]

On appeal, the Seventh Circuit affirmed.[112] The appellate court implicitly accepted, without discussion, the trial court's channels-of-commerce analysis, noting that "Congress can regulate waterways used to transport people and goods in interstate or foreign commerce," and adding that "[t]he sum of many small interferences with commerce can be large, and so to protect commerce Congress must be able to regulate an entire class of acts if the class affects commerce, even if no individual act has a perceptible effect."[113] The Seventh Circuit's analysis, therefore, seems to embrace a channels-of-commerce analysis that includes consideration of activities that substantially affect channels of commerce, as opposed to activities that substantially affect commerce.

Finally, in *United States v. Johnson*,[114] the First Circuit employed the *Deaton* court's channels-of-commerce approach, expanded the *Thorson* court's incorporation of *SWANCC*'s Commerce Clause analysis, and added a compelling statutory construction analysis of the CWA's implementing regulations as promulgated by the EPA.[115] According to

111. *Id*. at *16 ("'The term "navigable" has at least the import of showing us what Congress had in mind as its authority for enacting the [Clean Water Act]: its traditional jurisdiction over waters that were or had been navigable in fact or which could reasonably be so made.'" (quoting *SWANCC*, 531 U.S. at 172)).

112. United States v. Gerke Excavating, Inc., 412 F.3d 804 (7th Cir. 2005).

113. *Id*. at 806.

114. United States v. Johnson, 437 F.3d 157 (1st Cir. 2006).

115. *Id*. *See also infra* notes 116–21 and accompanying text. The EPA's regulations are found at 40 C.F.R. § 230.3 (2006) and are identical to the Corps's version at 33 C.F.R. § 328.3. *Johnson*, 437 F.3d at 165 n. 9. The EPA regulations provide in pertinent part:

> (b) The term "adjacent" means bordering, contiguous, or neighboring . . . .
> . . .
> (s) The term 'waters of the United States' means:
> (1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
> (2) All interstate waters including interstate wetlands;
> (3) All other waters such as intrastate lakes, rivers, streams, (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:
> (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
> (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
> (iii) Which are or could be used for industrial purpose by industries in interstate commerce;
> (4) All impoundments of waters otherwise defined as waters of the United States under the definition;

the *Johnson* court, the government may exercise jurisdiction over certain waters only pursuant to authority deriving directly from its authority to regulate navigable-in-fact waters, i.e., waters used as channels of commerce.[116] The power to regulate navigable waters as channels of commerce is an independent power, whereas the power to regulate non-navigable tributaries or adjacent wetlands requires derivative jurisdiction.[117] In other words, the government's jurisdiction over tributaries and adjacent wetlands "is valid only if the jurisdictional rationale for the water on which it is 'piggybacking' is also valid."[118]

The *Johnson* court proceeded to analyze the Commerce Clause justification for the CWA under *Deaton's* channels-of-commerce approach.[119] Finding *Deaton* to be "persuasive," the *Johnson* court next considered the channels-of-commerce rationale under the Supreme Court's Commerce Clause analysis in *SWANCC* and *Riverside Bayview Homes*.[120] Like the *Thorson* court, the First Circuit found that *SWANCC* "explicitly acknowledged the 'channels of commerce' rationale for the CWA."[121] By contrast, in *Riverside Bayview Homes*, the Supreme Court assumed the CWA's constitutional validity under a channels-of-

(5) Tributaries of waters identified in paragraphs (1) through (4) of this section;
(6) The territorial sea;
(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1)-(6) of this section.

Id. at 165 (quoting 40 C.F.R. § 230.3).

116. *Johnson*, 437 F.3d at 165–66 ("[Subsection] (s)(1) covers waters used as 'channels of commerce.' In the scheme established by § 230.3, the government's jurisdiction over waters described in (s)(5)(tributaries) and (s)(7)(wetlands adjacent) would derive from the government's jurisdiction over waters covered by (s)(1)(navigable-in-fact). . . . Certain terms in the text of § 230.3 emphasize this distinction between independent and derivative rationales. For instance, the word 'tributary' as used in the regulation and navigability-in-fact are mutually exclusive. If § 230.3(s)(1) extends jurisdiction over navigable-in-fact waters, tributaries of such waters, discussed in (s)(5), cannot be navigable-in-fact. If a tributary were navigable-in-fact, jurisdiction over that particular water would be covered by (s)(1). Although in common usage a tributary could be navigable-in-fact—e.g., the Missouri River is a tributary of the Mississippi River—navigability-in-fact and 'tributary' are not redundant bases for jurisdiction under the regulation. In the same way that (s)(5) would be repetitive if 'tributaries' were navigable-in-fact, (s)(7) is redundant unless 'wetlands adjacent' are not 'tributaries' as described in (s)(5) or navigable-in-fact waters as described in (s)(1). For example, if an (s)(7) 'wetland adjacent' were navigable-in-fact, jurisdiction over that wetland would actually be covered by (s)(1). Section (s)(7) would be unnecessary. Similarly, if an (s)(7) wetland were a 'tributary' as covered by (s)(5), again (s)(7) would be extraneous. Only if an (s)(7) 'wetland adjacent' is categorically different from a navigable-in-fact water or an (s)(5) tributary does the inclusion of (s)(7) make sense." (citing United States v. Lopez, 514 U.S. 549, 558 (1995); The Daniel Ball, 10 Wall. 557 (1870))).

117. *Id*.

118. *Id.*

119. *Id*. at 173–74.

120. *Id*. at 174–76.

121. *Id*. at 174.

commerce rationale.[122] The *Johnson* court thus concluded that the CWA is an exercise of Congress's authority to regulate channels of commerce and that derivative authority to regulate non-navigable tributaries and adjacent wetlands is a legitimate means for protecting the nation's navigable waters against misuse.[123]

D. Regulation of Wetlands After Gonzales v. Raich *Under Congress's Power to Regulate Activities Having a Substantial Effect on Commerce*

1. The *Raich* Decision and its Underlying Rationale

The Court's 2005 decision in *Gonzales v. Raich* arguably signals a return to increased judicial deference to federal legislation regulating purely intrastate matters, where the legislation is enacted pursuant to Congress's power to regulate activities substantially affecting interstate commerce.[124] In *Raich*, the Supreme Court upheld the Controlled Substances Act to regulate purely intrastate, homegrown, medicinal marijuana as a valid exercise of Congress's commerce powers.[125] Relying in part on the cumulative effects doctrine,[126] the Court found that the Controlled Substances Act constituted a comprehensive regulatory scheme, and as such, the statute regulates a broad class of economic activity.[127] The Court concluded that excising purely intrastate subsets of the same class of activity would undermine the entire legislative framework.[128]

The *Raich* decision dealt with economic intrastate activities in the context of a comprehensive scheme of federal regulation, which Justice Scalia, in a concurring opinion, found to be distinct from *Lopez* and *Morrison*, as the statutes at issue in those cases were not part of a broad legislative enactment.[129] Invoking *McCulloch v. Maryland*, Justice

122. *Id*. at 174–75.

123. *Id*. at 181 ("Based on the Fourth Circuit's reasoning in *Deaton*, and the consistency of that reasoning with the Supreme Court's decisions in *Riverside* [*Bayview Homes*] and *SWANCC*, . . . the extension of jurisdiction to the target sites [is] justified on the basis of a 'channels of commerce' rationale, [and falls] safely within Congress'[s] power under the Commerce Clause.").

124. Gonzales v. Raich, 125 S. Ct. 2195 (2005).

125. *Id*.

126. Under the cumulative effects doctrine, Congress may regulate a purely intrastate activity that by itself may have no impact on interstate commerce but that, when combined with other isolated activities of the same kind, may, in the aggregate, substantially affect interstate commerce. Wickard v. Filburn, 317 U.S. 111 (1942).

127. *Raich*, 125 S. Ct. 2195.

128. *Id*.

129. *Id*.

Scalia noted that this distinction is substantive because the Necessary and Proper Clause "empowers Congress to enact laws in effectuation of its enumerated powers that are not within its authority to enact in isolation."[130]

2. The Implications of *Raich* for Interpreting Section 404 of the Clean Water Act

Even if one accepts the proposition that the CWA is a land-use regulation,[131] *Raich* suggests that not all intrastate concerns traditionally reserved to state regulation should necessarily remain so, particularly where Congress has enacted a comprehensive statutory scheme.[132] After the Court's decisions in *Lopez*, *Morrison*, and *Raich*, Congress may regulate purely intrastate matters, including some activities traditionally regulated by the state, under the substantial effects prong of its commerce powers, where (1) the statute regulates an economic activity, and (2) the activity either is a part of a comprehensive scheme of legislation that could be undercut if the intrastate activity were not regulated, or has a direct and significant impact on interstate commerce.

a. Dredge and Fill of Wetlands as Economic Activity

Section 404 of the CWA regulates dredge and fill activities, which are typically undertaken by "commercial actors for a commercial profit" and are thus, as a general matter, economic in nature.[133] Given the commercial nature of most dredge and fill activities, the CWA may be properly classified as legislation that seeks to regulate an economic

130. *Id*. at 2218.

131. *See supra* note 96.

132. 125 S. Ct. 2195.

> Congress need not accept on faith that state law will be effective in maintaining a strict division between a lawful market for 'medical' marijuana and the more general marijuana market. . . . To impose on [Congress] the necessity of resorting to means which it cannot control, which another government may furnish or withhold, would render its course precarious, the result of its measures uncertain, and create a dependence on other governments, which might disappoint its most important designs, and is incompatible with the language of the constitution.

Id. at 2220 (Scalia, J. concurring). Though the Controlled Substances Act "regulates an area typically left to state regulation[,] . . .[t]hat is not enough to render federal regulation an inappropriate means." *Id*.

133. Baumgartner, *supra* note 11, at 2169 (arguing that section 404 "regulate[s] activity that is a necessary precursor to commercial development"). Recognizing that some dredge and fill activities are undertaken by private actors for private purposes, Baumgartner suggests that such noneconomic activities have such a minimal impact on wetlands that "the CWA and its regulations could . . . be re-written to reach only economic activity without losing any force." *Id*.

activity and, as such, meets the first prong of the substantial effects test.

b. Dredge and Fill of Wetlands as Activity Regulated Under Comprehensive Legislative Scheme

Section 404 also meets the second prong of the post-*Raich* substantial effects test because the CWA clearly constitutes a comprehensive legislative program, of which the regulation of discharging pollutants into wetlands is a subpart.[134] Virtually all wetlands, regardless of any direct or indirect surface connection to navigable waters, are ultimately connected to navigable waters through groundwater flow.[135]

If Congress has authority under its commerce powers to regulate the discharge of pollutants into some types of wetlands as "waters of the United States," then regulating the discharge of pollutants into wetlands constitutes a class. If Congress's authority reaches regulation of the pollution of wetlands as a class, then it reaches the whole class, including regulating pollution discharges into intrastate, non-navigable, nonadjacent wetlands. Excising individual subclasses of wetlands from the regulatory scheme would undercut the broader legislative scheme. This is particularly true given the interconnected nature of groundwater on the one hand, and surface water, including wetlands, on the other. Thus, under the post-*Raich* substantial effects framework, the CWA's section 404 jurisdiction reaches intrastate wetlands.

3. Post-*Raich* Decisions Interpreting the Reach of the CWA to Regulate Purely Intrastate Wetlands

Even assuming that the regulation of dredge and fill of wetlands is a noneconomic activity, Congress can still assert jurisdiction over wetlands under its channels-of-commerce test.[136] Although

134. *See infra* note 216. As part of the broader legislative scheme to restore, protect, and maintain the integrity of the nation's waters, wetlands play critical functions in reducing pollutants, controlling flooding, and recharging groundwater. *See infra* notes 159–75 and accompanying text.

135. *See* discussion *infra* Part IV.A.1–4.

136. Baumgartner, *supra* note 11, at 2149–50 ("Congress's power over the channels of commerce is broad enough to support federal jurisdiction over wetlands that are hydrologically connected to navigable-in-fact waters. The channels-of-commerce power is plenary and is given great deference by the Court because it does not raise the important federalism concerns that regulation of an intrastate activity affecting commerce does. Rather, the navigable waters doctrine assumes that navigable waters are tied to national interests—and, presumably, a legitimate exercise of federal power—while non-navigable waters are tied to local interests and are not the proper subject for federal regulation. In addition to being well settled, Congress's authority to regulate the channels of commerce is extensive. Lopez reaffirmed the broad scope of this power by quoting from *Caminetti v. United States*, which upheld the Mann Act barring the transport of 'any woman or girl' in interstate channels for an 'immoral

congressional authority to regulate activities having a substantial effect on interstate commerce requires that the regulated activities be economic in nature, its power to regulate the channels of commerce is not so limited.[137] A number of post-*Raich* decisions interpreting the CWA have implicitly, if not explicitly, applied this reasoning in upholding Congress's jurisdiction to regulate intrastate wetlands.

One of the first cases interpreting the CWA to be decided after *Raich* involved a contractor who challenged the constitutionality of the Corps's jurisdiction to regulate wetlands that drain through a ditch into a non-navigable creek that runs into a non-navigable river, which in turn runs into a navigable river.[138] The Seventh Circuit, in *United States v. Gerke Excavating, Inc*., interpreted *SWANCC*'s language that the CWA does not extend "'to ponds that are not adjacent to open water'" as applying only to ponds that are "completely isolated from any navigable waterway, tributary, etc."[139] Interpreting "adjacent" to mean "connected" under the facts of the case, the court upheld the constitutionality of the CWA's jurisdiction over intrastate wetlands connected to navigable waters, even where the connection is indirect and distant.[140]

The court's analysis included discussion of some of the functions that the millions of acres of wetlands in the continental United States serve, noting that they "supply some of the water in navigable waterways"[141] and that "by temporarily storing storm water, wetlands reduce flooding, which can interfere with navigation."[142] But the court specifically rejected the argument that the CWA applies to intrastate wetlands only where their pollution would impinge the navigability of a waterway.[143]

purpose.' The Act was within congressional authority, even though the defendant's conduct—transporting a woman across state lines to 'be and become his mistress and concubine' was entirely noncommercial. Thus, Congress's authority to regulate the channels of interstate commerce is also quite broad in scope, properly barring the 'injurious uses' of the nation's channels of commerce.").

137. United States v. Deaton, 332 F.3d 698, 706 (4th Cir. 2003). *See also supra* notes 100–04 and accompanying text.

138. United States v. Gerke Excavating, Inc*.,* 412 F.3d 804 (7th Cir. 2005).

139. *Id*. at 808 (quoting Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs (*SWANCC*), 531 U.S. 159, 168 (2001)). Importantly, wetlands are rarely completely isolated from navigable waters because they are connected through groundwater flow. *See* discussion *infra* Part IV.A.1–4.

140. *Gerke Excavating*, 412 F.3d at 808.

141. *Id*. at 806.

142. *Id*. (citation omitted).

143. *Id*. at 807 ("In fact navigability is a red herring from the standpoint of constitutionality. The power of Congress to regulate pollution is not limited to polluted navigable waters; the pollution of groundwater, for example, is regulated by federal law, e.g., 42 U.S.C. §§ 300h, 6949a(c), 9621(d)(2)(B)(ii), because of it effects on agriculture and other industries whose output is shipped across state lines, and such regulation has been held to be authorized by the commerce clause." (citing Freier v.

Further, the court concluded, congressional authority to prohibit the pollution of navigable waters does not require that the pollution actually affect navigability.[144] Applying the cumulative effects doctrine,[145] the court reasoned that the test of regulability over wetlands cannot depend upon whether a particular activity in itself interferes with navigation.[146] Thus, according to the Seventh Circuit, Congress may exert its commerce powers to regulate intrastate wetlands that are indirectly connected to distant navigable waters, even where the pollution of a particular wetland would have no effect on navigability.[147]

Whereas the *Gerke Excavating* court used a hydrologic connection between wetlands and navigable waters to establish adjacency, the Ninth Circuit in *Baccarat Fremont Developers, LLC v. U.S. Army Corps of Engineers* held that a hydrological or ecological connection is unnecessary for the Corps to exercise jurisdiction where wetlands are physically adjacent to navigable waters.[148] According to the *Baccarat* court, *SWANCC* did not alter *Riverside Bayview Homes*'s determination that the Corps had acted within its authority by defining all adjacent wetlands as waters of the United States, even where some wetlands have no ecologically significant relationship to the waterways they abut.[149]

IV. THE UTILITY OF FEDERAL POWER TO PROTECT WETLANDS UNDER THE CLEAN WATER ACT

A. The Scientific Background

1. Drainage Basins and Watersheds

Most Americans have heard of the continental divide, but probably

Westinghouse Elec. Corp., 303 F.3d 176, 202–03 (2d Cir. 2002); United States v. Olin Corp., 107 F.3d 1506, 1510–11 (11th Cir. 1997); *cf.* Allied Local & Reg'l Mfrs. Caucus v. U.S. Envtl. Prot. Agency, 215 F.3d 61, 81–83 (D.C. Cir. 2000))).

144. *Id.*

145. The court implemented the cumulative effects doctrine, first established by *Wickard v. Filburn* and recently reinforced by *Raich*. *See supra* notes 126–27 and accompanying text.

146. *Gerke Excavating*, 412 F.3d at 806 ("The sum of many small interferences with commerce can be large, and so to protect commerce Congress must be able to regulate an entire class of acts if the class affects commerce, even if no individual act has a perceptible effect.").

147. *Id*. at 807.

148. Baccarat Fremont Developers, LLC v. U.S. Army Corps of Eng'rs, 425 F.3d 1150 (9th Cir. 2005).

149. *Id*. at 1155 ("'Of course, it may well be that not every adjacent wetland is of great importance to the environment of adjoining bodies of water. But the existence of such cases does not seriously undermine the Corps's decision to define all adjacent wetlands as 'waters.'" (quoting United States v. Riverside Bayview Homes, 474 U.S. 121, 135 n.9 (1985))). This view might be considered to be invoking the cumulative effects doctrine as applied to a regulatory, as opposed to legislative, scheme.

few know its location, and fewer still its function.[150] The continental divide, a north-south line spanning the length of North America, identifies the separation point that determines the direction of water flow to the major river systems on either side.[151] All water to the west of the line eventually flows to the Pacific Ocean; all water to the east flows to the Atlantic.[152] Thus, a drop of rain that falls on the west side of the continental divide will flow toward the Pacific, and a drop of rain that falls on the east side will flow to the Atlantic.

The continental divide is the primary topographic feature controlling the flow of North American waters, but other, smaller divides also direct the path water takes to its final drainage point.[153] Separate drainage basins form as a result of these smaller divides, which include the ridges separating small ravines, and they funnel the water into the streams draining them.[154] Drainage basins act as funnels, directing the water's route through surface runoff and groundwater flow.[155] A related geological feature, the watershed, is also important to understanding the function of the continental divide.[156] A watershed, which is the integrated system of groundwater and surface water flow associated with a drainage basin, is the area of land where all of the surface and subsurface waters reach the same destination.[157] A watershed, which may be of any shape or size, may cross county, state, and national

150. Although in common parlance, most references are to "the continental divide," there are in fact multiple continental divides. *See infra* notes 152–54 and accompanying text.

151. FRANK PRESS & RAYMOND SIEVER, EARTH 314 (James Gilluly & A.O. Woodford eds., 1974).

152. *Id.* Another major divide in the United States runs east-west and separates all the water flowing to the north, eventually reaching the Great Lakes and the St. Lawrence River, from the water flowing to the south, eventually emptying into the Gulf of Mexico via the Mississippi. *Id*.

153. *Id*.

154. *Id*. The Sangamon River drainage basin in Springfield, Illinois, provides a good illustration of the hierarchy of drainage basins and divides. South of the Sangamon River is the divide separating it from the smaller drainage basin of the Macoupin Creek:

> The rivers of both drainage basins empty into the Illinois River, and so Springfield is also in the larger Illinois River drainage basin, separated by a divide some sixty miles east of Springfield from the drainage basin of the Wabash River, which drains Eastern Illinois and Western Indiana to the Ohio River near Shawneetown, Illinois. And so it goes. The Ohio and Illinois both drain to the Mississippi, which is the master river of the whole drainage basin east of the north-south continental divide and south of the east-west continental divide.

Id. at 314–15.

155. *Id*. at 227–28.

156. U.S. ENVTL. PROT. AGENCY, WATERSHEDS (Apr. 1, 2005), http://www.epa.gov/owow/watershed/whatis.html.

157. *Id*.

boundaries.[158]

2. The Relationship Between Drainage Basins or Watersheds and Wetlands

Of the numerous factors directing the movement of water within watersheds, wetlands serve a pivotal role by storing, then releasing, precipitation and surface water into other surface resources, groundwater, and the atmosphere.[159] In addition to receiving, storing, and releasing water, wetlands' functions within a watershed include maintaining stream flow during dry periods and replenishing ground water.[160] The water storage capacity of a given wetland depends partly on the size of the wetland: a small wetland may have very small storage capacity, but the storage capacity of a network of several wetlands, even small ones, may be enormous.[161]

3. The Relationship Between Drainage Basins or Watersheds and Groundwater Flow

Just as topographic divides determine the directional flow of surface water, subsurface water flow is subject to groundwater divides.[162] Like its surface counterpart, a groundwater divide comprises a line of separation along which water penetrating the surface on one side of the divide will flow in one direction, while water penetrating the surface on the other side of the divide will flow in the other.[163] Generally, groundwater divides coincide precisely with surface-water divides; however, as topographic and hydrogeologic conditions become more complex, the direction of groundwater flow may deviate from that of surface water flow.[164]

158. *Id*.

159. U.S. Envtl. Prot. Agency, Watershed Academy Web (Aug. 18, 2003), http://www.epa.gov/watertrain/wetlands [hereinafter Watershed Academy Web]. This function is part of the hydrologic cycle, which is the "general model of the transport of water through the atmosphere, oceans, surface water, and groundwater." KENNETH W. AYERS ET AL., ENVIRONMENTAL SCIENCE AND TECHNOLOGY HANDBOOK 3 (1994).

160. Watershed Academy Web, *supra* note 159.

161. U.S. ENVTL. PROT. AGENCY, FUNCTIONS AND VALUES OF WETLANDS, EPA 843-F-01-002c (Sept. 2001), *available at* http://www.epa.gov/owow/wetlands/pdf/fun_val.pdf.

162. R. ALLAN FREEZE & JOHN A. CHERRY, GROUNDWATER 194 (1979).

163. *Id*.

164. *Id.*

4. The Relationship Between Wetlands and Groundwater Flow

Many kinds of interactions occur between groundwater and the surface water of wetlands.[165] Sometimes wetlands receive major discharge points for flowing groundwater.[166] Conversely, wetlands may serve as major sources of recharge, feeding water into the surrounding groundwater system.[167] The recharge and discharge relationship between wetlands and groundwater varies according to several factors: local hydrogeology, including, for example, hydraulic gradients, hydraulic conductivity, and porosity; evapotranspiration rates; soil composition; season; and climate.[168] Though the majority of wetlands function as groundwater discharge areas, recharge may still occur seasonally in small amounts; and in some areas, wetlands supply substantial recharge.[169] The recharge function serves a particularly vital role where groundwater withdrawal meets agricultural, industrial, and municipal needs.[170] Some wetlands substantially recharge area aquifers.[171]

Wetlands also help control the level of the water table and regulate the hydraulic head, thus providing the force needed for groundwater recharge or discharge.[172] Activities that change wetland hydrology, such as drainage or dredging and filling activities, may detrimentally alter groundwater.[173] Drainage of wetlands serving as discharge areas may reduce the hydraulic head needed to force groundwater discharge into the wetlands by lowering the water table.[174] Drainage also affects

165. Virginia Carter, *Technical Aspects of Wetlands: Wetland Hydrology, Water Quality, and Associated Functions,* NATIONAL WATER SUMMARY ON WETLAND RESOURCES (Mar. 7, 1997), *available at* http://water.usgs.gov/nwsum/WSP2425/hydrology.html. *See also* New South Wales Gov't Dep't of Natural Res., Wetlands Facts, *available at* http://www.naturalresources.nsw.gov.au/care/wetlands/facts/ pdfs/groundw01.pdf [hereinafter Wetlands Facts].

166. Carter, *supra* note 165. *See also* Wetlands Facts, *supra* note 165. "Discharge" is the term used when water leaves groundwater channels and enters the wetlands' surface waters.

167. Carter, *supra* note 165. *See also* Wetlands Facts, *supra* note 165. "Recharge" refers to the seepage of water from surface-water bodies, such as wetlands, into the groundwater.

168. Groundwater recharge and discharge are processes in the hydrologic cycle and are not unique to wetlands. Carter, *supra* note 165; U.S. ARMY CORPS OF ENG'RS, WETLANDS GROUNDWATER PROCESSES, WRP TECHNICAL NOTE HY-EV-2.2 (Jan. 1993), *available at* http://el.erdc.usace.army.mil/wrtc/wrp/ tnotes/hyev2-2.pdf.

169. Carter, *supra* note 165.

170. *Id.*

171. *Id*.

172. NCSU Water Quality Group, Functions of Wetlands (Processes), http://www.water.ncsu.edu/watershedss/info/wetlands/function.html (last visited July 22, 2006) [hereinafter Functions of Wetlands].

173. NCSU Water Quality Group, Values of Wetlands, http://www.water.ncsu.edu/watershedss/info/wetlands/values.html (last visited July 22, 2006) [hereinafter Values of Wetlands].

174. *Id*.

recharge wetlands, reducing the water flow to groundwater and potentially changing the hydrology of an entire watershed.[175]

B. Groundwater as a Regulable Class Substantially Affecting Channels of Commerce

Commentators have argued that *SWANCC* categorized Congress's power over navigation as a channel-of-commerce power rather than a substantial effects power.[176] The appeal of navigation as a channel-of-commerce power is that such power is impervious to the attenuation objection that the Court leveled against the government in *Lopez* and *Morrison*. The power to regulate channels of commerce extends to

175. *Id.* In one 1980 study, a researcher determined that draining eighty percent of a five acre cypress swamp in Florida would reduce available groundwater by forty-five percent. *Id*. In small wetlands such as prairie potholes, the recharge function may make significant contributions to regional groundwater sources, sometimes by as much as twenty percent of wetland volume per season. *See* Functions of Wetlands, *supra* note 172. Wetlands not only play a critical role in watersheds and groundwater flow, they also serve many valuable, more general, functions, including water quality preservation, flood protection, erosion control, and habitat protection. *See* U.S. Envtl. Prot. Agency, Wetlands and People (Feb. 22, 2006), http://www.epa.gov/owow/wetlands/ vital/people.html. Wetlands are natural filters, trapping pollutants and unwanted sediments from surface-water runoff before it reaches open water. *See id*.; *see also* FUNCTIONS AND VALUES OF WETLANDS, *supra* note 161. As the runoff water passes through, the wetlands retain excess nutrients and some pollutants, and reduce sediment that would clog waterways. In performing this filtering function, wetlands save us a great deal of money. For example, a 1990 study showed that without the Congaree Bottomland Swamp in South Carolina, the area would need a $5 million waste water treatment plant. U.S. ENVTL. PROT. AGENCY, WETLANDS, 2000 NATIONAL WATER QUALITY INVENTORY REPORT TO CONGRESS, Ch. 5, *available at* http://www.epa.gov/305b/2000report/ chp5.pdf [hereinafter EPA REPORT TO CONGRESS]. Wetlands are also natural sponges, temporarily absorbing excess water and releasing it slowly, thereby protecting adjacent and downstream properties from possible flooding, reducing erosion, and lowering flood heights. *See* Wetlands and People, *supra*. Wetlands in close proximity to urban areas are particularly valuable because they are able to counteract "the greatly increased rate and volume of surface-water runoff from pavement and buildings." *Id*. Wetlands' flood control capabilities suggest a national interest in their preservation and restoration as alternatives to flood control through expensive dredge operations and levees. *Id*. Despite the flood protection qualities that wetlands offer, these waters continue to be degraded or destroyed. For example, filling or draining of the bottomland hardwood-riparian wetlands along the Mississippi River has reduced the wetlands ability to store flood waters from at least sixty days to twelve days. *Id*. Wetlands also protect against erosion. Wetlands near larger bodies of water, such as lakes, rivers, bays, and the ocean offer erosion protection for shorelines and stream banks. EPA REPORT TO CONGRESS, *supra*. "The ability of wetlands to control erosion is so valuable that some states are restoring wetlands in coastal areas to buffer the storm surges from hurricanes and tropical storms." *Id*. Finally, wetlands are important to the survival of certain plants and wildlife, which rely on wetlands for food, habitat, or temporary shelter. *Id*. "Although wetlands make up only about 3.5 percent of U.S. land area, more than one-third of the United States' threatened and endangered species live only in wetlands[,]" and "[a]n additional 20% of the United States' threatened and endangered species use or inhabit wetlands at some time in their life." Values of Wetlands, *supra* note 173.

176. Baumgartner, *supra* note 11, at 2137, 2152 n.88; Knutsen, *supra* note 12, at 173.

activities that involve the misuse of such channels.[177] "The power over navigable waters also carries with it the authority to regulate non-navigable waters when that regulation is necessary to achieve Congressional goals in protecting navigable waters."[178]

Congressional authority to regulate the channels of commerce is sufficiently broad "to support federal jurisdiction over wetlands that are hydrologically connected to navigable-in-fact waters."[179] Several courts have recognized that groundwater may serve as the required link between intrastate wetlands and navigable waters to justify federal regulation.[180] Though most of these cases were decided prior to *SWANCC*,[181] recent district court decisions have revisited the issue.[182] Unfortunately, courts uniformly agree that CWA jurisdiction does not extend to groundwater having no perceived connection to surface waters.[183] This conclusion rests partly on the legislative history of the CWA[184] and partly on the complexity of the relationship between

177. United States v. Lopez, 514 U.S. 549, 558 (1995) ("The authority of Congress to keep the channels of interstate commerce free from immoral and injurious uses has been frequently sustained, and is no longer open to question." (quoting Caminetti v. United States, 242 U.S. 470, 491 (1917))).

178. United States v. Deaton, 332 F.3d 698, 707 (4th Cir. 2003) (citing United States v. Grand River Dam Auth., 363 U.S. 229, 232 (1960); Oklahoma *ex rel*. Phillips v. Guy F. Atkinson Co., 313 U.S. 508, 525–26 (1941); United States v. Rio Grande Dam Irrigation Co., 174 U.S. 690, 708–09 (1899)).

179. Baumgartner, *supra* note 11, at 2150.

180. *See* U.S. Steel Corp. v. Train, 556 F.2d 822, 852 (7th Cir. 1977) (permitting jurisdiction over injection of pollutants into groundwater); McClellan Ecological Seepage Situation (MESS) v. Weinberger, 707 F. Supp. 1182, 1196 (E.D. Cal. 1988) (finding that discharges into groundwater that is naturally connected to surface waters that constitute "navigable waters" may be regulated under the Clean Water Act); Sierra Club v. Colo. Ref. Co., 838 F. Supp. 1428, 1434 (D. Colo.1993) (holding that pollutants discharged into navigable waters fall within CWA jurisdiction where such pollutants migrate through groundwater to navigable waters); Wash. Wilderness Coal. v. Hecla Mining Co., 870 F. Supp. 983, 990 (E.D. Wash.1994) (stating that "since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit"); Friends of Santa Fe County v. LAC Minerals, Inc., 892 F. Supp. 1333, 1357 (D.N.M.1995) (holding that the Act covers groundwater that eventually migrates to surface water).

But see Kelley v. United States, 618 F. Supp. 1103, 1106 (W.D. Mich. 1985) (holding that the Clean Water Act does not reach groundwater contamination); Town of Norfolk v. U.S. Army Corps of Eng'rs, 968 F.2d 1438, 1451 (1st Cir.1992) (holding that groundwater connection to surface water is not subject to CWA jurisdiction unless the Corps and the EPA find ecological relationship); Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 966 (7th Cir. 1994) (finding that statutory and regulatory language do not support CWA jurisdiction over "artificial ponds that drain into ground waters"); Umatilla Waterquality Protective Assoc., Inc. v. Smith Frozen Foods, Inc., 962 F. Supp. 1312, 1318 (D. Or. 1997) (finding that section 404 does not apply to regulation of groundwater).

181. *See supra* note 180.

182. *See* Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169 (D. Idaho 2001); N. Cal. River Watch v. City of Healdsburg, No. C01-04686WHA, 2004 WL 201502 (N.D. Cal. Jan. 23, 2004); Cal. Sportfishing Prot. Alliance v. Diablo Grande, Inc., 209 F. Supp. 2d 1059 (E.D. Cal. 2002). *See also supra* notes 79–82 and accompanying text.

183. Knutsen, *supra* note 12, at 190.

184. *Id*. Knutsen correctly points out that based on the CWA's legislative history, courts have

groundwater and surface water.[185] Congress must assert, and courts must recognize, that controlling the use and misuse of navigable waters is inseparable from regulating groundwater, which is never purely intrastate.[186] Nor is it separable from regulating wetlands, which are rarely so small and isolated that they have no connection to groundwater.[187]

The complexity of the underlying science demonstrating the inevitable connection between wetlands, groundwater, and navigable waters supports a claim that federal oversight of groundwater and of intrastate wetlands falls well within Congress's commerce powers to regulate the navigable waters of the United States as channels of commerce. It also argues for conferring regulatory authority on the administrative agencies charged with implementing the CWA.

C. Chevron *Deference*

When regulatory agency decisions are challenged, courts typically accord such decisions what is known as *Chevron* deference.[188] In 1984, the Supreme Court established a two-step analysis to determine whether an agency's interpretation constituted a permissible construction of the statute it was implementing.[189] First, courts are to determine whether Congress has directly addressed the precise question at issue, and if so, whether it has done so unambiguously.[190] If Congress has not spoken to the question at issue, or if it has done so ambiguously, the next task is for the court to determine whether the agency's interpretation is reasonable.[191] If the statute does not directly and clearly address the precise matter at issue, then the court should defer to the agency's interpretation unless that interpretation is unreasonable.[192] *Chevron* deference is particularly important where an agency's interpretation of a statute's meaning or reach requires the agency to reconcile conflicting policies, and where specialized knowledge informs the decision.[193]

concluded that Congress did not intend to regulate non-tributary groundwater.

185. *See supra* notes 150–75 and accompanying text.

186. *See supra* notes 150–75 and accompanying text.

187. *See supra* notes 150–75 and accompanying text.

188. *See, e.g.*, United States v. Johnson, 437 F.3d 157, 177 (1st Cir. 2006).

189. Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 842–43 (1984).

190. *Id*.

191. *Id*.

192. *Id*. at 865.

193. Justice Stevens, writing for the Court, noted: "In these cases, the [administrative] interpretation represents a reasonable accommodation of manifestly competing interests and is entitled to deference: the regulatory scheme is technical and complex, the agency considered the matter in a

The Supreme Court's *SWANCC* majority declined to apply *Chevron* to section 404 of the CWA, finding that Congress had directly and unambiguously addressed the Migratory Bird Rule (MBR) by limiting its grant of authority to the Corps to regulate navigable waters.[194] As the wetlands at issue in SWANCC were not, and never had been, navigable-in-fact, and could not be reasonably so made, Congress did not grant the Corps regulatory power over them.[195] The Court's opinion stated that *Chevron* deference would not have saved the MBR in any event because the Corps's interpretation invoked the outer limits of Congress's commerce authority, which required a clear statement from Congress expressly conferring such authority.[196] This conclusion affords Congress with the opportunity to expressly confer regulatory authority to the administrative agencies to the fullest reach of the Commerce Clause.

Evaluating the effects of discharging groundwater pollutants in wetlands on navigable waters is a highly complex, scientific undertaking which considers the type, or class, of wetlands, their relationship to the groundwater, the nature of the pollutants, and the properties of the subsurface environment.[197] One wetlands classification scheme widely accepted among scientists is the hydrogeomorphic classification, which considers the interdependence of geomorphic setting, water source and its transport, and hydrodynamics to classify wetlands.[198] Geomorphic setting is the placement of the wetlands within its topographic surroundings.[199] Precipitation, surface or near-surface flow, and groundwater flow compose water sources.[200] Hydrodynamics describes the strength and directional flow of water within the wetland.[201] The effects on navigable waters of pollutants released into groundwater also

detailed and reasonable fashion, and the decision involves reconciling conflicting policies." *Id*. at 863.

194. Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs (*SWANCC*), 531 U.S. 159, 172 (2001) ("We find § 404(a) to be clear . . . .").

195. *Id*. at 167.

196. *Id*. at 172, 174 (citing Edward J. DeBartolo Corp. v. Fla. Gulf Coast Bldg & Constr. Trades Council, 485 U.S. 568, 575 (1988)).

197. A discussion of the extensive scientific details for such evaluations falls beyond the scope of this Comment. For an in-depth introduction, see DONALD M. KENT, APPLIED WETLANDS SCIENCE AND TECHNOLOGY (Donald M. Kent ed., 2nd ed. 2001).

198. *Id*. at 8.

199. *Id*. The hydrogeomorphic classification recognizes seven types of geomorphic setting, each of which has distinct combinations of hydroperiod, water flow direction, and vegetation. *Id*.

200. *Id*.

201. *Id*. at 9. "There are three qualitative categories of hydrodynamics: vertical fluctuations, unidirectional flows, and bidirectional flows. . . . The classification makes inferences about hydrodynamics based upon velocity of flow, rate of water table fluctuations, particle size distribution of bedload sediments, and the capacity to replace soil moisture deficits created by evapotranspiration." *Id*.

depend on the interaction of multiple factors, categorized broadly as: (1) the properties of pollutants released into groundwater, and (2) the properties of the subsurface environment into which the pollutant is released."[202]

Given the complex interactions between wetlands characteristics, groundwater flow, and the properties of pollutants, the regulatory agencies entrusted to administer section 404 are best suited to determine whether issuance of a dredge and fill permit serves a statutory policy, which, in *Chevron*'s words, requires "more than ordinary knowledge respecting the matters subjected to agency regulations."[203] Congress has correctly delegated broad regulatory authority to the EPA and the Corps.

V. CONCLUSION

Vague legislative definitions, varying agency regulations, and inconsistent judicial interpretations of section 404 of the Clean Water Act have resulted in divergent applications of its jurisdiction over intrastate non-navigable wetlands.[204] Some courts find jurisdiction over wetlands only where such wetlands are both adjacent and hydrologically connected at the surface to navigable waters.[205] Others find jurisdiction where the wetlands are adjacent to navigable waters, even if no surface hydrological connection is present.[206] Still other courts find jurisdiction where the wetlands are not adjacent to navigable waters but are

202. AYERS ET AL., *supra* note 159, at 26 (listing relevant pollutant properties as including: vapor pressure or volatility, miscibility with groundwater, solubility in groundwater, density or specific gravity, dynamic viscosity, reactivity, and susceptibility to biodegradation; and listing relevant subsurface environment properties as including: infiltration capacity of the soil, natural organic content of the soil and rock, unsaturated and saturated hydraulic conductivities in the soil and aquifer, effective porosity, relative permeabilities for immiscible chemicals and water in the soil and aquifer, depth to the water table, groundwater flow paths, mineralogy of the soil and rock, oxygen content in the subsurface, and bacterial community present).

203. Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 844 (1984). Preventing the degradation of groundwater depends upon

> a clear understanding of the hydrogeology and the transport mechanisms of potential contaminants . . . . Before allowing land use activities that are potentially a threat to surface water and groundwater, investigations should be conducted to determine the site's hydrogeologic characteristics. Groundwater flow directions, chemical transport processes, and heterogeneity in the system must be defined to gain as complete an understanding of the system as possible. Without this understanding, harmful activities [on the land] may be permitted . . . .

AYERS ET AL., *supra* note 159, at 34–35.

204. *See* discussion *supra* Parts II.B–C.

205. *See, e.g.*, Rice v. Harken Exploration Co., 250 F.3d 264, 271 (5th Cir. 2001). *See also supra* note 69.

206. *See supra* note 81 and accompanying text.

hydrologically connected to them via surface water.[207] Finally, some courts find jurisdiction over nonadjacent wetlands that are hydrologically connected to navigable waters through groundwater flow.[208] Refocusing the issue in two important ways can resolve most, if not all, of the inconsistencies.

First, most analyses ignore the relevant science critical to a full understanding of the relationship between putatively isolated wetlands and navigable waters. Analyzing the issue within the proper scientific framework allows, indeed requires, recognition of the significant connections between wetlands and navigable waters.

Science suggests that if the Court allows regulation of any water that is not navigable-in-fact, such as tributaries which are adjacent to navigable waters, then it should permit regulation of all waters, including "isolated" wetlands.[209] Any limits drawn more narrowly would be arbitrary, as water connections constitute a continuum in the hydrologic cycle.[210] Scientific and policy considerations support the conclusion that Congress should exercise its commerce powers to the fullest extent to regulate groundwater, and through it, intrastate wetlands, in the context of the CWA.[211]

The legislature should, therefore, explicitly exert its commerce power over the regulation of groundwater in the CWA, thereby removing any doubt as to the meaning of the "waters of the United States." As the Court has questioned whether the legislature intended the Corps, which possesses the requisite expertise, to regulate intrastate, "isolated" wetlands,[212] Congress should expressly state that it does so intend.

If Congress were to expressly confer authority upon the Corps to apply section 404 to purely intrastate wetlands, it could and should permeate the legislative record with the scientific rationale that serves as the basis for such grant of authority, thus alerting courts to the need for *Chevron* deference. Congress should explicitly include language on the complexity and site-specific nature of the effects of groundwater flow on navigable waters, as well as the conflicting policies that the agencies may consider in deciding whether to issue a permit.

Second, the Supreme Court's Commerce Clause jurisprudence has

207. *See supra* notes 73–75.

208. *See supra* notes 79–82.

209. *See* discussion *supra* Part IV.

210. *See* discussion *supra* Part IV.

211. *See* discussion *supra* Part IV.

212. Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng'rs (*SWANCC*), 531 U.S. 159, 174 (2001).

assumed new contours after *Raich*.[213] Most courts and commentators have tended to treat wetlands as the analytical fulcrum for determining the jurisdictional reach of section 404; however, the appropriate analysis places equal focus upon the dredging and filling activities that Congress has sought to regulate. Proper emphasis on the dredging and filling of wetlands as economic activities falling within a comprehensive legislative scheme would satisfy the post-*Raich* standard for constitutionally permissible federal regulation of intrastate activities under Congress's commerce powers.[214]

Like the Controlled Substances Act, which the *Raich* Court upheld to permit federal regulation of purely intrastate marijuana for medical purposes,[215] the Clean Water Act is a comprehensive regulatory scheme.[216] Discharging dredge and fill materials into wetlands unquestionably affects navigable waters.[217] Just as disallowing federal regulation of purely intrastate marijuana could undercut the purpose of the broad legislative efforts to prevent drug use, so too could excising isolated wetlands from the CWA's jurisdiction undermine Congress's efforts to control water pollution. This is particularly true given the scientific relationship between "isolated" wetlands and navigable waters, which supports the channels-of-commerce argument.

The Supreme Court's opinion in *Raich* signals to some degree a return to greater deference to congressional authority to regulate purely intrastate economic activities under the substantial effects prong of

213. *See* discussion *supra* Part III.D.

214. Importantly, although the legislative scheme as a whole must substantially affect interstate commerce, a comprehensive statute may include non-economic, intrastate activities that Congress could not regulate alone but can as part of the comprehensive scheme.

215. Gonzales v. Raich, 125 S. Ct. 2195, 2201 (2005).

216. *SWANCC*, 531 U.S. at 179 ("The Act . . . was universally described by its supporters as the first truly comprehensive federal water pollution legislation.").

217. For example, filling or draining of the bottomland hardwood-riparian wetlands along the Mississippi River has reduced the wetlands ability to store flood waters from at least sixty days to twelve days. *See supra* note 175. Wetlands' flood control functions operate to protect other waters throughout an entire watershed, regardless of those waters' adjacency to the wetlands. Stephen M. Johnson, United States v. Lopez: *A Misstep, but Hardly Epochal for Federal Environmental Regulation*, 5 N.Y.U. ENVTL. L.J. 33, 72–73 & n.194 (1996) (arguing that CWA regulation of the discharge of pollutants into wetlands promotes the policy purpose of watershed flood control, which the Supreme Court recognized in *Oklahoma ex rel. Phillips v. Atkinson Co.*, 313 U.S. 508 (1941)). In *Oklahoma ex rel. Phillips v. Atkinson Co*., the Court recognized that that flooding can have a substantial impact on interstate commerce and has upheld regulation of intrastate activities that help protect against flooding. *See* Johnson, *supra*, at 72–73. Prior to *SWANCC*, a number of appellate courts found 404 jurisdiction to be valid on the grounds that: "(1) wetlands prevent flooding and pollution of navigable waters; (2) navigable waters are channels of commerce; and (3) Congress can regulate purely intrastate activities to protect the channels of commerce." *Id*. at 73 (citing United States v. Pozsgai, 999 F.2d 719, 733 (3d Cir. 1993); United States v. Byrd, 609 F.2d 1204, 1210 (7th Cir. 1979); United States v. Ashland Oil & Transp. Co., 504 F.2d 1317, 1326–29 (6th Cir. 1974)).

federal commerce powers. Consequently, congressional authority under its interstate commerce powers to regulate the dredging and filling of purely intrastate, isolated, non-navigable wetlands should withstand judicial scrutiny.

Regardless of whether federal jurisdiction extends to putatively isolated wetlands under a substantial effects test, if Congress were to grant the Corps explicit jurisdiction over such wetlands, courts should uphold such grant of authority as a legitimate exercise of Congress's power to regulate channels of commerce. The rationale of *Raich* suggests that if Congress has authority to regulate dredge-and-fill discharges into wetlands as a class of activities that affect channels of commerce, then under the cumulative effects doctrine, it may regulate dredging and filling of all wetlands, even those that are purely intrastate and perceived to be isolated from navigable waters. If the judiciary refuses to accord deference to the CWA and similar science-based legislation, Congress should consider establishing a specialized court, perhaps modeled on bankruptcy courts, so that judges can develop the necessary scientific expertise to make sound decisions about such a complex subject matter, thus avoiding the piecemeal, arbitrary designations among court decisions about whether a particular wetland falls within the Corps's jurisdiction.