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Testimony of
The American Society of Civil Engineers
Before The Transportation and Infrastructure Committee
U.S. House of Representatives
on the
Status of the Nation's Waters, Including Wetlands, Under the Jurisdiction of
The Federal Water Pollution Control Act
July 19, 2007

Mr. Chairman and Members of the Committee:

The American Society of Civil Engineers (ASCE) is pleased to offer this testimony on the status of the nation's waters, including wetlands, under the jurisdiction of the Federal Water Pollution Control Act, commonly known as the Clean Water Act.

ASCE believes that Congress must amend the Act to clarify federal jurisdiction over wetlands, establish clearly where states must assume responsibility, and provide appropriate federal oversight. We recommend legislation that would:

- Maintain federal jurisdiction over all interstate and navigable waters, their tributaries, and all adjacent wetlands under the pre-2001 U. S. Army Corps of Engineers' regulatory program under the Commerce Clause in the U.S. Constitution using an unambiguous test for *significant nexus* to navigable-in-fact waters.
- Clarify state jurisdiction under section 404 of the Clean Water Act over isolated, non-navigable intrastate waters and their adjacent wetlands, including vernal pools, playas, and prairie potholes, considering recent Supreme Court decisions and other jurisdiction based on environmental and wildlife considerations under regulations promulgated by the Department of the Interior or the Environmental Protection Agency.
- Amend the Clean Water Act to clarify purely environmental federal jurisdiction over intermittent and ephemeral streams and their adjacent wetlands under section 404 of the U.S. Army Corps of Engineers, in coordination with the Environmental Protection Agency.

We believe that **H.R. 2421, the Clean Water Restoration Act of 2007**, satisfies most of these important policy goals. Significantly, the bill would remove the phrase "navigable waters" from the Act. This phrase is an artifact from an era in which the federal government was expected to protect navigation rather than environmental systems; the term is not necessary to protect waters of the United States from pollution. Indeed, the phrase already has resulted in a narrowing of the scope of the Act. H.R. 2421 also would define more exactly the types of waters and wetlands that are subject to federal protection under section 404. This definition would remove the ambiguity

surrounding the present judicial and administrative interpretations over the precise sphere of the Act.

We believe the bill could be improved, however. We suggest certain changes that would ensure that the Clean Water Act would protect wetlands and other waters of the United States to the maximum extent practicable.

The bill should be modified to:

- Provide incentives for the states to strengthen their programs to protect all wetlands under the Clean Water Act. The goal should be to increase delegation of the section 404 program to authorized states beyond the two states currently authorized to issue permits in lieu of the Corps of Engineers. One incentive could be realized by authorizing the use of grant money under section 106 for state wetland protection programs that meet minimum federal standards.

The states need to increase their efforts to preserve vital wetlands within their borders under section 404. Only Michigan and New Jersey now operate federally delegated wetlands programs. The remaining states need assistance to become full partners with the federal government in preserving wetlands, including geographically isolated wetlands.

- Emphasize the scientific basis for extending federal jurisdiction over waters of the United States.

Site hydrology is the critical factor in the preservation of wetlands. “Hydrological conditions, including variability in water levels and water flow rates, are the primary driving force influencing wetland development, structure, functioning and persistence.”¹ Most hydrologic processes exhibit a high degree of temporal and spatial variability and are further beset by issues of nonlinearity of physical processes, conflicting spatial and temporal scales, and uncertainty in limit estimates. Wetlands analysis involves the application of many scientific disciplines, including remote sensing, atmospheric science,

abiotic and biotic disciplines (ecology and plant physiology), modeling within watersheds, hydrometeorology, surface and groundwater models, surface and groundwater interaction, and other technical fields. The findings should explain that jurisdiction is based on these factors.

- Delete from the definition of waters of the United States in section 4 the phrase “to the fullest extent that these waters, or activities affecting these waters, are subject to the legislative power of Congress under the Constitution.”

This phrase is superfluous. Congress has plenary power to legislate under the Constitution, and there are few (though important) restrictions on that power. “The only limitation upon Congress is that[,] in enacting laws pursuant to its constitutional power[,] it shall not be unreasonable, arbitrary or capricious and that the means selected shall have a real and substantial relation to the object sought to be attained.”² Moreover, the phrase could result in litigation the results of which might create unforeseen difficulties for congressional legislative authority generally through a judicially decreed limit on the reach of the Congress’s power.

I. Background

In recent years, the U.S. Supreme Court has sought to substantially restrain congressional power to regulate intrastate commerce—that commerce covering a broad class of economic activities occurring wholly within one state—under the Commerce Clause to the Constitution.

Part of this trend has led the Court to limit the power of Congress over “waters of the United States” under the Clean Water Act (CWA) based on presumed conflicts between federal regulations over waters of the U.S. and the extent of the Act’s power under the Commerce Clause. This development has had unfortunate consequences for

geographically isolated wetlands, a unique form of ecosystem hydrology. The Court has attempted to draw a bright-line legal rule in order to establish the water's edge. The attempt ignores the science of wetlands. The effort also is compromised by the congressional belief in 1972, since proved mistaken, that states would agree to play a major role in the protection of isolated wetlands—a belief that has not been borne out by developments in a majority of the states. Congress must act to restore the balance in favor of the broad protections for America's aquatic resources first envisioned thirty-five years ago.

A. Wetlands

“Wetlands” are a transitional area between solid ground and water; the water table is usually at or near the surface. Frequently the land itself is covered by shallow water. To be classified as wetlands, the site must meet at least one of the following criteria: (1) the land periodically must support the growth of plants that grow either partly or totally under water; (2) the substrate must be composed predominantly of undrained wet soil; and (3) the substrate is saturated with water or covered by shallow water at some time during the growing season of each year.³

Wetlands perform a number of critical ecological and economic functions. They recharge groundwater, store floodwaters, reduce storm surges from hurricanes, retain sediment, improve water quality through the removal of toxic chemicals and nutrients, provide a general habitat for many animal species, and provide economically important recreational activities for people. Their loss decreases the overall capacity of the aquatic environment to carry out its various functions.⁴

There were an estimated 107.7 million acres of wetlands in the United States in 2004.⁵ Although the United States has steadily lost wetlands since the first European settlers arrived, overall losses on a massive scale may no longer be occurring. The Fish and Wildlife Service found in 2004 that, for the first time since statistics began being kept, the nation experienced a net gain of 191,750 acres of wetlands—all of them man-made—between 1998 and 2004.⁶ “It is likely there was no longer an overall net loss of wetland acreage occurring within the contiguous United States between 1997 and 2002. The statistical uncertainties, however, make it inappropriate to interpret these results as an overall net gain.”⁷ Significantly, the federal studies provide no assessment of the quality of the restored wetlands. It remains unclear whether these artificial gains in wetlands acreage improve the overall ability of U.S. wetlands to carry out their important ecological and economic functions.

In more than 80 percent of the cases, isolated wetlands are completely surrounded by uplands and show no apparent surface water inlets or outlets.⁸ The most commonly occurring isolated wetlands are those that are separated geographically.⁹ In the past, federal officials have identified isolated wetlands as deserving special attention due to their ecological and economic values. “While all wetlands are important in ecological functioning on a watershed scale, some are better protected than others; isolated wetlands and waters are particularly at risk”¹⁰ “Small isolated wetlands can be of great cumulative importance to the aquatic ecosystem.”¹¹

Isolated wetlands are found in every state and make up a significant portion of all U.S. wetlands.

Of the 276 wetland and riparian ecological systems described for the United States, 81 (29 percent) met [the] working definition for

“geographically isolated,” based on documented knowledge of their distribution and typical site characteristics. Of the 81 isolated wetland types, only 16 (20 percent) fall into the strict isolation subcategory, while the remaining 65 systems (80 percent) fall into the partial isolation subcategory. [I]solated wetlands make up 13 percent of the 636 “natural/near natural” terrestrial ecological system types (both upland and wetland) currently classified . . . for the United States.¹²

Numbers of isolated wetland types by state range from a low of one (West Virginia) to a high of 16 (New York and Texas). Proportions of wetlands categorized as isolated vs. non-isolated were lowest in Alaska, Hawaii, Kentucky, Tennessee, and West Virginia. In Indiana, Iowa, Kansas, Michigan, Minnesota, North Dakota, and Wisconsin, more than half of the wetland system types may fairly be classified as geographically isolated.¹³

A total of 33 endangered, threatened, or candidate animal species listed under the Endangered Species Act are wholly or partly dependent upon isolated wetlands for their habitats.¹⁴ In addition, a total of 279 at-risk plant species are found in isolated wetlands nationwide.¹⁵

B. The Clean Water Act

Congress enacted the Federal Water Pollution Control Act Amendments of 1972 (now known to as the Clean Water Act) "to restore and maintain the chemical, physical, and biological integrity of the [n]ation's waters."¹⁶ One of the mechanisms adopted by Congress in 1972 to achieve that purpose was to prohibit under section 404 the discharge of any pollutants into "navigable waters" without a permit issued by the United States or an authorized state.¹⁷ The CWA provides that "[t]he term 'navigable waters' means the waters of the United States, including the territorial seas."¹⁸

Wetlands are one component of “waters of the United States.” Determining the regulatory significance of “navigable waters” within the meaning of “waters of the United States” and the scope of the federal government’s legal power to protect wetlands has occupied federal policymakers and the courts for more than two decades.

Section 404 of the Clean Water Act of 1972 limits the addition of pollutants and other materials into the waters of the United States.¹⁹ Section 404 limits the destruction of the environment from industrial activity through a system of discharge permits issued by the U.S. Army Corps of Engineers. Not every discharge into waters of the U.S. requires a permit, however.²⁰

In 1974, the Corps issued a rule that restricted the scope of section 404 to waters of the United States that are actually capable of carrying commercial traffic from one state to another. The rule sought to limit the scope of the 404 regulatory program only to those navigable waters regulated under section 10 of the Rivers and Harbors Act of 1899.²¹ The 1974 rule was invalidated by the U.S. District Court for the District of Columbia, which held that the Clean Water Act jurisdiction extended to waters that do not meet “the traditional tests of navigability.”²²

In 1975, the Corps redefined “the waters of the United States” to include not only actually navigable waters but also their tributaries, interstate waters and their tributaries, and nonnavigable intrastate waters (i.e., waters wholly within one state) whose use or misuse could affect interstate commerce.²³ The new definition covered (1) all waters currently or formerly used or susceptible to use in interstate or foreign commerce, including all waters 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, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, if their use, degradation or destruction could affect interstate or foreign commerce, including any such waters (i) which are or could be used by interstate travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate commerce; or (iii) which are used 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; (5) tributaries of regulated waters; (6) the territorial seas; and (7) wetlands adjacent to waters (other than waters that are themselves wetlands). The term excluded prior converted cropland.²⁴

Congress expanded the scope of section 404 in 1977 to require a permit for discharges of dredged or fill material into navigable waters, including wetlands.²⁵ Discharges may be authorized by the Corps through an individual permit issued under section 404(a) or a general permit authorized by section 404(e).

C. Scope of the Commerce Clause

For 125 years, the Supreme Court accepted broad congressional power under the Commerce Clause over interstate commerce, including commerce on navigable waterways engaged in intrastate commerce.²⁶ The Commerce Clause applied to commercial activities crossing state lines as well as “to those activities intrastate which so affect interstate commerce or the exercise of the power of Congress over it as to make regulation of them appropriate means to the attainment of a legitimate end, the exercise of the granted power of Congress to regulate interstate commerce.”²⁷ But in 1995 the Court began limiting congressional sway over what a bare majority of justices saw as purely local, intrastate commerce.²⁸

With respect to the Clean Water Act, the new Commerce Clause direction had an immediate impact on federal regulation of U.S. waters. The Court had first attempted to define federal jurisdiction under the Act in United States v. Riverside Bayview Homes,²⁹ when it held that the U.S. Army Corps of Engineers (Corps) had broad power to regulate wetlands adjacent to navigable bodies of water and their tributaries under section 404. These wetlands, the Court concluded, could reasonably be regulated if the Corps found that they were “inseparably bound up” with “waters of the United States” that were subject to the Clean Water Act.³⁰ The Court also discarded a prerequisite that the regulated lands be under water.³¹

In January 2001, however, the opinion in Solid Waste Agency of Northern Cook County (SWANCC) v. United States Army Corps of Engineers³² retreated from the broad ruling in Riverside Bayview Homes and restricted federal jurisdiction over intrastate waters for the first time. To come within federal protection, the SWANCC Court said, the wetlands need to exhibit a “significant nexus” to navigable waters, a conclusion, the majority argued, that was in fact based on a principle in Riverside Bayview Homes.³³ The decision eliminated federal jurisdiction over isolated wetlands that were (or could be) used by migratory birds. The SWANCC Court indicated that the states could fill the gap left by the shortened federal leash over intrastate waters.

Notwithstanding the holding’s narrow application to migratory bird habitats, the opinion seemed to indicate that all waters within a single state eventually could be beyond the reach of the Clean Water Act absent a clear connection to interstate commerce. Even though the SWANCC holding was limited only to certain isolated waters, its practical effect was to leave remote wetlands at risk of destruction from

industrial activities due to the uncertainty in the minds of federal and state regulators over the reach of the 404 program. “The concepts of ‘tributary,’ ‘adjacency,’ and ‘significant nexus’ are the main jurisdictional issues in the post-SWANCC debate.”³⁴ The decision was seen by many as a major revision to the Act. “In ruling that the Corps and the [Environmental Protection Agency] no longer had jurisdiction over isolated intrastate waters, the Court fundamentally changed section 404 wetlands regulatory programs.”³⁵

D. The Rapanos Decision

In 2006, a badly divided Court further reduced federal controls on development activities in wetlands located wholly within one state. In a plurality opinion, four justices questioned the Corps regulation of intrastate wetlands and concluded in Rapanos v. United States that the Act protects only “relatively permanent, standing[,], or flowing bodies of water.”³⁶ From this premise, Justice Scalia reasoned for the plurality that only those wetlands with a continuous surface connection to “waters of the United States” are themselves subject to Clean Water Act jurisdiction. The plurality opinion clearly stated that wetlands “with only an intermittent, physically remote hydrologic connection to ‘waters of the United States’ do not implicate the boundary-drawing problem of Riverside Bayview, and thus lack the necessary connection to covered waters that we described as a ‘significant nexus’ in SWANCC.”³⁷ Justice Kennedy, concurring in the judgment, argued that federal jurisdiction extends to those waters where “a significant nexus” to interstate waters based on the Act's goals and purposes of restoring and maintaining maintain the chemical, physical, and biological integrity of the nation's waters. Rejecting the plurality’s conclusion that federal jurisdiction requires a direct hydrologic connection, he argued that “the Corps' conclusive standard for jurisdiction rests upon a reasonable

inference of ecologic interconnection, and the assertion of jurisdiction for those wetlands is sustainable under the Act by showing adjacency alone.”³⁸

Importantly, all nine justices agreed that the term “waters of the United States” includes some waters that are not navigable in the traditional sense.³⁹ But the plurality concluded that “SWANCC rejected the notion that the ecological considerations upon which the Corps relied in Riverside Bayview . . . provided an independent basis for including entities like ‘wetlands’ (or ‘ephemeral streams’) within the phrase ‘waters of the United States.’”⁴⁰

E. Role of the States

The states have been slow to accept the Court’s summons to action in the six years since the decision in SWANCC. As we have noted, only two states have received federal approval to issue section 404 dredge-and-fill permits. By early 2007, meanwhile, only 15 states addressed isolated wetlands in their administrative codes. Still more significantly, few of these states offer the same level of protection to remote wetlands as the federal program did.

Under state laws, general protections for wetlands vary enormously from state to state, and not all state wetlands laws affirmatively shield wetlands as wetlands from destruction. In Alabama, for example, a 1965 statute states that: “It is hereby declared that the drainage of surface water and the reclamation of wetlands, swamplands, overflowed lands and tidal marshes and flood prevention and the conservation, development, utilization and disposal of water shall be considered a public benefit and conducive to the public health, safety, convenience, utility and welfare.”⁴¹

Wisconsin law, on the other hand, recognizes broad protections for all wetlands and emphasizes the importance of the hydrological connection among wetlands and watersheds. “A particular wetland may function to maintain the hydrologic characteristics, and thereby the physical and chemical integrity of an entire aquatic ecosystem. Assessment of the hydrologic support function shall consider the effects that modifications of a particular area could have on the hydrologic relations to the whole wetland or aquatic ecosystem, and on the cumulative effects of piecemeal alterations.”⁴²

The state of Tennessee has adopted the hydrogeomorphic system approach to “identify and group functionally similar wetlands.”⁴³

II. Need for Congressional Action

The decisions in SWANCC and Rapanos cause two problems for those states inclined to venture deeply into isolated wetlands in future. These failings must be addressed by Congress, not the states, in order to ensure a consistent level of protection for the nation’s wetlands.

- Taken together, the Court’s reading of the Clean Water Act in the two opinions attempts to apply the legal principles of statutory construction, not scientific ones. Whether the decisions follow the canons of statutory construction is debatable, but they clearly fail to take subsurface hydrology and the intrinsically interstate nature of U.S. waters and wetlands into account.
- The opinions, in assessing the Act’s congressional statement of policy, assume that the states will take on the major responsibility for protecting isolated wetlands under principles of federalism. This has not happened.

A. Importance of Hydrology

The plurality’s assertion in Rapanos that wetlands that are not directly connected on the surface to a regulated body of water are beyond the scope of the Act fails to recognize the physical behavior of water in the environment. The plurality’s total

reliance on a surface connection entirely ignores the critical role of groundwater and local hydrological conditions in the functioning of healthy wetlands. The plurality's approach in Rapanos cannot be squared with the science of wetlands classification, which is based on several hydrological factors, only one of which entails surface connectivity, and the inherently interstate nature of all watersheds and most wetlands.

One recent analytical tool developed to help understand the hydrology of wetland function is the hydrogeomorphic (HGM) approach. Wetland hydrology, including sources of water and hydrodynamics, is typically considered the single most important factor controlling wetland ecosystem processes.

The HGM approach is based on classification—or “hydrological segregation”—that results in an organization of wetlands according to different potential functions and benefits. The U.S. Geological Survey (USGS) frequently uses a modified HGM approach to categorize wetlands. The USGS assigns categories based on the wetlands' position in the landscape, their soils and surficial geologic setting, and their sources of water.⁴⁴ Traditionally, the USGS uses the HGM approach in a wetlands permitting setting, by comparing a particular wetland to a set of defined reference wetlands that span a functional integrity spectrum, to determine the degree to which the wetland in question functions as a degraded or an undegraded example of wetlands with similar hydrology.⁴⁵

In addition, groundwater-flow patterns and water quality in a variety of hydrogeologic settings in various wetlands are strongly affected by landscape features. These landscape features may be strongly related to bedrock or surficial lithology, geologic structure, mineral composition of the aquifer material, or a combination of any or all of them.⁴⁶ In other words, the soil, rock, and water beneath a wetland are as

important—if not more so—to a well-functioning aquatic system. In hydrology every water molecule is connected to every other molecule, no matter how remote the connection may seem on the surface. To repeat, water below the surface is essential to maintaining the flow of rivers and streams. “Ground water underlies the earth's surface everywhere, and in most places, especially in humid climates, it is in direct contact with surface-water bodies. Ground water is in constant motion through flow systems of various magnitudes, and these flow systems commonly interact with surface-water bodies. As a result, ground-water flow systems can be thought of as subsurface tributaries of streams.”⁴⁷

Hydrological factors are important to the understanding of the nature and performance of wetlands. None of them is analyzed, or even discussed, in the SWANCC or Rapanos decisions. Without a technically sound, systematic understanding of how water behaves, the Supreme Court seems destined to continue to grope in the dark for solutions to problems that cannot readily accommodate strict legal determinations.

B. Weakness of the Act

A second jurisdictional problem also stems from the fact that the Act as written in 1972 has a structural weakness: it assumes that the states were to be the major players in the protection of wetlands and other waters. The Act cedes to the states “the primary responsibilities and rights” to restore, preserve, and enhance water resources.

Thirty-five states, however, have no federal or state protections in place for geographically isolated wetlands. Since SWANCC, only 14 states—Arkansas, Colorado, Florida, Indiana, Massachusetts, Montana, Nebraska, New Jersey, North Carolina, Ohio, Oregon, Rhode Island, Virginia, and Wyoming—regulate geographically

isolated wetlands under state law; some of these state safeguards, however, are less than fully protective.⁴⁸ A fifteenth state, Wisconsin, subsequently enacted a law to protect “nonfederal wetlands” under state law.⁴⁹

The issue of deciding which level of government is best able to protect the nation’s natural resources is not new and not settled. “[T]here are increasing calls for transfer of responsibility for environmental protection to the states. . . . While devolution of federal power is not limited to the field of environmental protection, it does present unique problems in this area where few issues are neatly confined within state political boundaries.”⁵⁰

Nor did Congress anticipate that a number of states—such as Arizona, Georgia, Idaho, to name three examples randomly—essentially would adopt the federal wetlands program, down to and including the same definitions found in Corps regulations, as a matter of state law.⁵¹ Thus at the very least the decision in Rapanos invites increased litigation at the state level to determine whether the states may protect isolated wetlands to the extent intended by the Corps in the federal rules.

Congress should amend the Clean Water Act to establish clear federal jurisdiction over intrinsically intrastate waters. These waters are “inseparably bound up” with traditional navigable waters due to their hydrological connection to them, which creates the “significant nexus” required. Because few streams or wetlands are truly isolated hydrologically, the broadest possible protections under the law are scientifically justified on hydrological grounds, even in the absence of any legally definable jurisdiction under the Commerce Clause.

That concludes our statement. Please contact Michael Charles of the ASCE
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ENDNOTES

¹ NATIONAL RESEARCH COUNCIL, COMPENSATING FOR WETLAND LOSSES UNDER THE CLEAN WATER ACT 3 (2001).

² Hollingsworth v. Federal Min. & Smelting Co., 74 F.Supp. 1009, *1022 (D.C. Idaho 1947).

³ U.S. Fish and Wildlife Service, Classification of Wetlands and Deepwater Habitats of the United States 3 (December 1979). The Corps of Engineers has adopted a less technical definition. “‘Wetlands’ are those areas ‘that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.’” 40 C.F.R. § 230.3(t) (2006).

⁴ L. M. Vasilas and B. L. Vasilas, Wetland Restoration and Creation Design to Restore Wetland Functions, in ASCE WATERSHED 2005 (2005). Not every wetland performs equally, however. See C.D. Abney, Designing Wetlands for Wildlife, in ASCE WETLANDS 2001: WETLANDS ENGINEERING AND RIVER RESTORATION CONFERENCE 2001 (Donald F. Hayes ed., 2001) (“Most larger, natural wetland complexes are likely to provide most or all of the potential functions described. However, smaller wetlands, including artificial wetlands, may only effectively provide one or two.”)

⁵ U.S. Fish & Wildlife Service, Status and Trends of Wetlands in the Conterminous United States 1998 to 2004, 16 (2004).

⁶ Id. at 93.

⁷ U.S. Natural Resources Conservation Service, National Resources Inventory: 2002 Annual NRI (2004).

⁸ NatureServe, Biodiversity Values of Geographically Isolated Wetlands in the United States 9 (2005) at <http://www.natureserve.org/publications/isolatedwetlands.jsp>.

⁹ Ralph W. Tiner, Geographically Isolated Wetlands of the United States, 23 WETLANDS 494 (2003).

¹⁰ U.S. Environmental Protection Agency, FY02 Wetland Program Development Grants Guidelines, 66 Fed. Reg. 46,450, *46,452 (Sep. 5, 2001).

¹¹ U.S. Army Corps of Engineers, Clean Water Act Regulatory Programs, 58 Fed. Reg. 45,008, *45,024 (Aug. 25, 1993).

¹² NatureServe, Biodiversity Values at 17.

¹³ Id. at 21-22.

¹⁴ Id. at 24.

¹⁵ Id. at 39.

¹⁶ 33 U.S.C. § 1251(a).

¹⁷ 33 U.S.C. §§ 1311(a), 1362(12) (A).

¹⁸ 33 U.S.C. § 1362(7).

¹⁹ 33 U.S.C. § 1344.

²⁰ See 33 C.F.R. § 323.4 (a) (1) (i) (2006) (exempting “[n]ormal farming, silviculture and -ranching activities such as plowing, seeding, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices” from the Act’s permitting requirements).

²¹ 33 U.S.C. § 407. See Lance D. Wood, Don’t Be Misled: CWA Jurisdiction Extends to All Non-Navigable Tributaries of the Traditional Navigable Waters and to their Adjacent Wetlands, 34 ENVTL. L. REP. 10,187, 10,204 (2004).

²² Natural Resources Defense Council v. Callaway, 392 F.Supp. 685 (1975).

²³ This approach followed the Court’s pre-1995 Commerce Clause jurisprudence, which gave Congress full power to regulate (1) the use of the channels of interstate commerce; (2) “the instrumentalities of interstate commerce, or persons or things in interstate commerce, even though the threat may come only from intrastate activities,” and (3) “those activities having a substantial relation to interstate commerce, ... i. e., those activities that substantially affect interstate commerce.” U.S. v. Morrison, 529 U.S. 598, 609 (2000) (internal citations omitted) (emphasis added).

²⁴ 33 C.F.R. § 328.3.

²⁵ “Dredged material” is material that has been excavated, or otherwise removed, from waters of the United States. 33 C.F.R. § 323.2 (c) (2006). “Fill material” is material that is placed in waters of the United States and replaces any portion of a water of the United States with dry land or changes the bottom elevation of any portion of a water of the United States. Id. § 323.2 (e) (1) (i-ii).

²⁶ See Gilman v. Philadelphia, 3 Wall. (70 U.S.) 713, 724-725 (1866) (“Commerce includes navigation. The power to regulate commerce comprehends the control . . . of all the navigable waters of the United States which are accessible from a State other than those in which they lie. For this purpose they are the public property of the nation, and subject to all the requisite legislation by Congress.”); The Daniel Ball, 77 U.S. 577 (1870) (upholding an act of Congress requiring a federal license for a vessel engaged in the movement of passengers and cargo entirely within one state where some passengers and cargo ultimately entered interstate commerce by crossing a state line, even when the original vessel never crossed a state line).

²⁷ U.S. v. Lopez, 514 U.S. 549, *555 (1995) (5-4 decision) (Stevens, J., dissenting) (invalidating the Gun-Free School Zones Act of 1990 as exceeding the Commerce Clause) (quoting U.S. v. Darby, 312 U.S. 100 (1941)).

²⁸ Id.; U.S. v. Morrison, 529 U.S. 598 (2000) (5-4 decision) (Souter, J., dissenting) (limiting the power of Congress under the Commerce Clause to regulate activities that are “of an apparent commercial character” and that are intrastate in nature).

²⁹ 474 U.S. 121 (1985).

³⁰ Id. at 134.

³¹ Id. at 130 (“The history of the regulation underscores the absence of any requirement of inundation.”)

³² 531 U.S. 159 (2001) (5-4 decision) (Stevens, J., dissenting).

³³ 531 U.S. at 167.

³⁴ Tracie-Lynn Nadeau and Mark Cable Rains, Hydrological Connectivity between Headwater Streams and Downstream Waters: How Science Can Inform Policy, 43 J. AM. WATER RES. ASS’N, 119 (2007).

³⁵ SWANCC Supreme Court Decision: Impact on Wetlands Regulations: Hearing before the Subcomm. on Fisheries, Wildlife, and Water of the Senate Comm. on Env’t. and Pub. Works, 108th Cong. 1 (2003) (statement of Sen. Crapo).

³⁶ 126 S.Ct. 2208, 2221.

³⁷ Id. at 2226.

³⁸ Id. at 2248.

³⁹ Id. at 2220 (plurality opinion) (“[T]he Act’s term ‘navigable waters’ includes something more than traditional navigable waters.”); id. at *2241 (Kennedy concurring) (“at least some wetlands fall within the scope of the term ‘navigable waters.’”); id. at *2255 (Stevens dissenting) (treating wetlands adjacent to navigable waters as waters themselves advances the congressional aim of protecting water quality).

⁴⁰ Id. at *2226 (emphasis in original). Of course the Corps may regulate any waters that meet either the plurality’s criterion or the Kennedy standard because the dissent explained that it would uphold federal jurisdiction whichever principle is fulfilled. See id. at *2265 (Stevens, J., dissenting).

⁴¹ ALA.CODE 1975 § 9-9-5 (Acts 1965, No. 685, p. 1246, § 3) (emphases added).

⁴² WI ADC § NR 131.06

⁴³ TN ADC 1200-4-7-.03

⁴⁴ USGS, Using Hydrogeomorphic Criteria to Classify Wetlands on Mt. Desert Island, Maine—Approach, Classification System, and Examples (2005) (internal citations omitted) at <http://pubs.usgs.gov/sir/2005/5244/> (last visited Jan. 3, 2007).

⁴⁵ Id.

⁴⁶ USGS, Ground-Water Discharge and Base-Flow Nitrate Loads of Nontidal Streams and their Relation to a Hydrogeomorphic Classification of the Chesapeake Bay Watershed, Middle Atlantic Coast 9 (1998) at <http://pubs.usgs.gov/wri/wri98-4059> (last visited Jan. 3, 2007).

⁴⁷ Thomas C. Winter, The Role of Ground Water in Generating Streamflow in Headwater Areas and in Maintaining Base Flow, 43 J AM. WATER RES. ASS'N 23 (2007) (emphasis added).

⁴⁸ CODE ARK. R. 014 03 014 (banning the siting of waste-tire storage facilities within 200 feet of an isolated wetland); 40 FL ADC 40C-42.0265 (limiting the treatment of stormwater in wetlands to isolated wetlands); 40 FL ADC 40C-44.066 (allowing isolated wetlands to be used for water quality purposes by agricultural surface water management systems); 40 FL ADC 40C-400.475 (“Dredging and filling of isolated wetlands shall be limited to only those areas required for siting the portions of the residence and associated residential improvements which cannot be sited in uplands because there is an insufficient unrestricted area of uplands within the contiguous ownership of the applicant on which the residence and associated residential improvements can be located.”); N.C. ADMIN. CODE TIT. 15A, R. 2H.1301 (allowing discharges of treated sewage into isolated wetlands and isolated classified surface waters resulting from activities which receive NPDES permits or state “non-discharge permits.”); and OR. ADMIN. R. 141-120-0160 (allowing local units of government to develop isolated wetlands of less than one acre in size if the wetland has “no functions or values and has little enhancement potential”).

⁴⁹ W.S.A. 281.36 (2001-2002 Wisc. Legis. Serv. Act 6 (2001 S.B. 1)) (eff. May 8, 2001) (“nonfederal wetlands” are defined as any wetlands that do not satisfy the SWANCC standard for regulation as a matter of federal law or that are “determined to be a nonnavigable, intrastate, and isolated wetland under the decision in” SWANCC).

⁵⁰ Andrew Hecht, Obstacles to the Devolution of Environmental Protection: States’ Self-Imposed Limitations on Rulemaking, 15 DUKE ENVTL. L. & POL’Y F. 105 (2005). See also Jonathan H. Adler, Jurisdictional Mismatch in Environmental Federalism, 14 N.Y.U. ENVTL. L. J. 130 (2006) (arguing that “[t]he division of authority and responsibility for environmental protection between the federal and state governments lacks any cohesive rationale or justification.”).

⁵¹ See, e.g., A.R.S. § 49-772 ; Ga. Code Ann., § 12-5-30; I.C. § 39-7403 (56).