

The Clean Water Act Jurisdictional Handbook

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THE CLEAN WATER ACT JURISDICTIONAL HANDBOOK

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Present and past ELI staff contributing to one or both editions of this publication include: Bruce Myers, Jim McElfish, Roxanne Thomas, Teresa Chan, Rebecca Kihslinger, and Carolyn Clarkin.

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INTRODUCTION

What waters can call on the Clean Water Act for protection? And which remain unprotected, absent action by Congress or the states? This second edition of the Clean Water Act Jurisdictional Handbook provides the tools for answering these questions, using the current legal framework and based on the latest science.

This year marks the fortieth anniversary of the Clean Water Act. When Congress passed the landmark water law in 1972 in response to the national water pollution crisis, few could have guessed that four decades later we would still be asking such basic questions about the scope of this foundational environmental statute. But the two most recent Supreme Court decisions addressing the reach of Clean Water Act coverage have rendered a once well-settled area of law uncertain.

In 2001, the U.S. Supreme Court handed down a 5-4 ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (known as the *SWANCC* case) that constrained the reach of federal authority under the Clean Water Act for the first time, casting doubt on an expansive interpretation of Clean Water Act jurisdiction that had long held sway. Then, in 2006, the Supreme Court decided *Rapanos v. United States*, a blockbuster case on the scope of federal jurisdiction under the Clean Water Act. This time, the justices divided so sharply over both results and rationales that there was no majority opinion.

Together, the one-two punch of *SWANCC* and *Rapanos* has left anyone who cares about the protection of America's water resources struggling to sort out what the Clean Water Act still covers, what may now be beyond its reach, and where the uncertainties lie. These rulings have led to serious problems with Clean Water Act enforcement and sown confusion and frustration among water professionals, environmentalists, industry, property owners, and the public.¹ Six years after the *Rapanos* decision, uncertainty prevails in this area of the law.

ENSURING FEDERAL PROTECTION FOR WETLANDS AND STREAMS

In the wake of the Supreme Court's *SWANCC* and *Rapanos* rulings, ensuring the protection of wetlands and streams, in particular, has become a pressing concern.² In this handbook, the terms "wetlands" and "streams" are used as follows—

- *Wetlands* are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.
- *Streams* are linear geographic features that convey flowing waters. Headwater streams are the uppermost, low-order streams of a watershed—they comprise the

majority of streams in the United States, both in terms of number and length. Streams can be perennial, intermittent, or ephemeral.

This handbook focuses on the extent to which the Clean Water Act covers wetlands and streams—particularly “non-navigable” wetlands and streams—and how such coverage can be demonstrated with reference to existing scientific literature and other types of evidence and tools.

The first three chapters summarize and explain the sometimes confusing law of Clean Water Act jurisdiction, with reference to the text of the Act and the key Supreme Court cases interpreting it. Chapter Four presents an overall approach to assessing Clean Water Act coverage for wetlands and streams—with a checklist for each. Chapter Five explains how the scientific literature on wetlands and streams can be used to help determine whether a particular wetland or stream is covered by the Act. Chapter Six briefly considers the future of Clean Water Act jurisdiction, with particular emphasis on the latest activity in the federal agencies and Congress. A glossary of scientific terms is included as a further resource.

Finally, the handbook contains a comprehensive Case Appendix summarizing all relevant lower federal court rulings issued since the Supreme Court’s 2006 *Rapanos* decision. Key U.S. Environmental Protection Agency (EPA) administrative rulings are also noted.

WHO SHOULD USE THIS HANDBOOK?

This handbook is intended for anyone who is faced with the question of whether a particular wetland or stream is subject to the protections of the Clean Water Act. This guide serves both as an accessible starting point for the legal layperson who needs to understand Clean Water Act jurisdiction and as a reference for those with experience in this area of law. (The Case Appendix, in particular, contains significant legal detail on decisions issued by the lower federal courts.) Ultimately, this handbook was written with a lay audience in mind. The user need be neither a lawyer nor a water resources scientist.

Watershed organizations and concerned citizens can use the handbook as an aid in evaluating whether activities needing a federal permit, such as the dredging and filling of wetlands, are taking place—or are about to take place—in waters that are protected by the Clean Water Act. If so, these organizations and citizens may choose to notify the U.S. Army Corps of Engineers (Corps), EPA, or state natural resources officials of the potential violations, or may consider filing a citizen lawsuit under the Act.

The handbook also can assist residential, commercial, and industrial property owners in assessing whether waters located on their property are likely subject to federal jurisdiction.

The handbook is further intended to serve as a legal and scientific resource to federal and state regulators who must regularly make difficult jurisdictional calls on wetlands and streams for a variety of purposes: for example, with respect to the programs operating under Sections 303, 401, 402, and 404 of the Clean Water Act.

This guide is not designed to be exhaustive. Rather, it identifies and explains the most authoritative sources of legal and scientific information bearing on whether specific wetlands and streams are likely to be covered by the Clean Water Act—namely, the text of the Act itself, the major Supreme Court decisions interpreting the scope of the Act, and key scientific literature. Of course, other factors affect the determination of whether a particular wetland or stream comes within the coverage of the Act. For example, the two federal agencies with primary responsibility for implementing the Clean Water Act, the Corps and EPA, have issued guidance documents intended to clarify their current interpretation of Clean Water Act coverage. Although these guidance documents are not legally binding, and remain subject to change, they provide important insight into how the government interprets and asserts its jurisdiction in light of the *Rapanos* decision. (See Chapter Six for further discussion of the status of post-*Rapanos* agency guidance.)

Nothing contained in this handbook is intended to constitute legal advice. Nor should the reader assume that materials identified here as being potentially valuable in demonstrating Clean Water Act coverage—such as scientific journal articles, photographs, or maps—will necessarily be admissible as evidence in legal proceedings. Legal rights can and do vary based on court decisions in particular judicial circuits (see Case Appendix) and other factors. When in doubt, the reader should consult an attorney.

HOW THE TERM “JURISDICTION” IS USED IN THE HANDBOOK

The words “jurisdiction” and “jurisdictional” are used throughout this handbook. The term is intended to refer to the scope of the Clean Water Act—that is, to characterize what waters are “in” (or jurisdictional) and what waters are “out” (or non-jurisdictional). In this sense, the word “jurisdiction” is synonymous with “coverage” or “scope.”

Lawyers can rightly quibble with the handbook’s non-technical use of the word jurisdiction. This is because it is a legal term of art referring to legal power or authority. Specifically, where there is “federal jurisdiction,” the U.S. government may properly assert its authority. Federal authority is always derived from the U.S. Constitution; sometimes this authority is shared with the states, and sometimes it is exclusive. From this technical legal perspective, the Clean Water Act Jurisdictional Handbook is concerned with determining what waters are subject to federal jurisdiction pursuant to the Clean Water Act.

But the phrase “Clean Water Act jurisdiction” has long been used as shorthand among lawyers and many judges to characterize the reach of the Clean Water Act. The handbook follows this convention.

CHAPTER 1

THE CLEAN WATER ACT

The Federal Water Pollution Control Act, commonly known as the Clean Water Act,³ establishes the legal framework for the protection of water resources in the United States. This chapter describes the purpose and key components of the Act. It also introduces the terms that Congress has used to define which waters are protected by the Act.

AN ALL-ENCOMPASSING PROGRAM OF WATER POLLUTION REGULATION

Congress intended the Clean Water Act to represent a comprehensive and unprecedented approach to the national problem of water pollution.⁴ The opening words of the Act state its clear and ambitious objective: “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁵ Congress used the word “integrity” here to refer to “a condition in which the natural structure and function of ecosystems is maintained.”⁶

The purpose of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.

As the Supreme Court explained in one of the first cases interpreting the Act, Congress’s intent “was clearly to establish an all-encompassing program of water pollution regulation.”⁷ In a later case, the Court observed that the Clean Water Act applies to “virtually all bodies of water.”⁸

HOW DOES THE CLEAN WATER ACT WORK?

The Clean Water Act contains various interrelated mechanisms designed to achieve the law’s broad remedial purpose. Each of these mechanisms is based on the same jurisdictional term: “navigable waters.”

The heart of the Act is found in the prohibition contained in Section 301: it is illegal to discharge pollutants except in compliance with the Act.⁹ Although many of the words used in the Act are defined, their meanings are not always evident. The term “discharge” includes the “discharge of a pollutant” or the “discharge of pollutants,”¹⁰ which in turn means “any addition of any pollutant to navigable waters from any point source.”¹¹ A pollutant can be practically anything: “dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock,

sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.”¹² A “point source” under the Act is “any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.”¹³

There are two major exceptions to the Section 301 prohibition—and both are implemented through permitting programs. The first is the National Pollutant Discharge Elimination System, or “NPDES,” permit program. Established by Section 402 of the Clean Water Act, the NPDES program allows for a pollutant to be discharged into the Nation’s waters when done in compliance with a properly issued permit.¹⁴ An individual NPDES permit contains various requirements, including that the discharger meet effluent limits. These permit limits are derived from a calculation of both technology-based limits and water quality-based effluent limits needed to protect the receiving waters.¹⁵ Although the Clean Water Act grants EPA oversight for Section 402 permitting, all but a handful of states are authorized to administer their own NPDES permit program under a delegation of authority from EPA.¹⁶

The second major exception to the Section 301 prohibition on discharges into the Nation’s waters is the “dredge and fill” permit program administered by the Corps, in cooperation with EPA. Under this program, established by Section 404 of the Clean Water Act, the Corps may issue permits for the discharge of dredged or fill material at specified disposal sites.¹⁷ Although states may seek to assume administration of certain Section 404 permits,¹⁸ only Michigan and New Jersey have done so, leaving the “dredge and fill” program—unlike the NPDES permit program—largely the province of the federal government.¹⁹

Also important is Section 401 of the Clean Water Act, which requires an applicant for any federal permit covering an activity that may result in a “discharge” into “navigable waters” to first obtain a state certification, to ensure that the project will comply with state water quality standards.²⁰ Technically, a water quality standard, used to determine water quality-based effluent limits and for Section 401 certification, consists of both the “designated uses” (for example, public water supply, propagation of fish and wildlife, or recreation) for the waters involved, as well as the water quality criteria for the waters based on those uses.²¹

Another essential mechanism in the Clean Water Act was intended to serve as a backstop to the technology-based requirements governing discharge of pollutants: the requirement that states establish water quality standards and, where those standards have not been met, determine the pollutant loads that are needed to ensure that the standards are satisfied.²² When a state determines that waters are impaired by one or more pollutants—that is, that the waters do not meet the water quality standard—the state must establish a priority listing of such waters and calculate a “total maximum daily load,” or “TMDL,” for them.²³ TMDLs are “the actual plans that identify pollution loadings, allocate them to sources, and present mechanisms for their abatement.”²⁴ EPA oversees state compliance with the TMDL program.²⁵

The Clean Water Act contains many more provisions than those summarized here.²⁶ This overview simply highlights core programs where disputes over the reach of federal jurisdiction under the Act are possible. In particular, many lawsuits and enforcement actions have arisen in the context of Section 404.

THE ACT COVERS “WATERS OF THE UNITED STATES”

Every requirement contained in the Clean Water Act, including each of the programs discussed above, applies only to waters that come within the Act’s coverage. Specifically, the Act asserts jurisdiction over “navigable waters.”²⁷ This term is defined as “waters of the United States, including the territorial seas.”²⁸ Thus, the discharge of a pollutant is covered by the Clean Water Act only if the discharge is to “navigable waters.” And states are required to establish and implement water quality standards only for “navigable waters.” Bodies of water that are not “navigable waters” fall beyond the scope of the Clean Water Act—though activities that affect them may be subject to regulation under state law or other federal laws.

Use of the jurisdictional term “navigable waters” in the Clean Water Act was based on Congress’s historical use of its constitutional power to regulate commerce among the several states, a power that has been applied to navigable waters since at least the early 1800s.²⁹ As applied to regulation of discharges to water, the term derives from a permitting provision from the 1899 Refuse Act that made unlawful the discharge of materials without authorization from the Corps of Engineers into “any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water . . . or on the bank of any tributary.”³⁰ Early versions of the Federal Water Pollution Control Act in the mid-twentieth century first used the term “interstate waters” to define jurisdiction,³¹ but in 1961 Congress amended the Act to adopt the term “navigable waters” to achieve broader coverage.³² In 1972, Congress defined this term in the Clean Water Act as noted above.

The Supreme Court has observed that in adopting the new definition in 1972, “Congress evidently intended to repudiate limits that had been placed on federal regulation by earlier water pollution control statutes and to exercise its powers under the Commerce Clause to regulate at least some waters that would not be deemed ‘navigable’ under the classical understanding of that term,” such as wetlands that are neither navigable in fact nor capable of being made navigable.³³

So what *are* “navigable waters” for purposes of the Clean Water Act? The Act’s definition of the term to encompass “the waters of the United States” simply leads to the next question: what are “waters of the United States?” And here, the Clean Water Act provides no specific answer. The Corps and EPA, however, have enacted matching regulations identifying the various categories of water bodies that they deem to be “waters of the United States,” based on their expertise and interpretation of the Clean Water Act.³⁴ These regulations cannot be read in isolation, as their validity and scope remain subject to the many judicial decisions interpreting—and in some instances criticizing—them. The result is a complex field of law where many water bodies are

undoubtedly “waters of the United States,” but coverage for other waters is far less certain. Hence the need for this handbook.

One broad category of water bodies whose coverage is not in dispute consists of all *traditional navigable waters*—that is, waters that are, were, or could be used in interstate or foreign commerce, including waters that are influenced by the tide.³⁵ The word “commerce” for these purposes is not limited to activities such as the use of major waterways by large barges hauling freight. Rather, the word is sweeping in its application and can include, for example, historical use of the waters by canoes and frontier craft, use for the commercial movement of logs, and even use by recreational craft.³⁶ As a result, large numbers of streams and wetlands throughout the United States are traditional navigable waters—meaning that they are covered by the Clean Water Act.³⁷ Each Corps district office maintains a list of these waters located within the district, providing an excellent starting point for determining whether a particular wetland or stream is jurisdictional.³⁸

Other basic categories of “waters of the United States” include wetlands and streams that cross state lines,³⁹ as well as wetlands that are adjacent to traditional navigable waters.⁴⁰

Because of recent Supreme Court decisions, however, the scope of the term “waters of the United States” is far less clear with respect to wetlands and streams that: do *not* qualify as traditional navigable waters; are *not* adjacent to traditional navigable waters (in the case of wetlands); or do *not* cross state lines. To assist the reader in understanding, choosing among, and applying the various legal tests that can be used to demonstrate Clean Water Act coverage over a wetland or stream, Chapter Four provides two checklists—one for wetlands and one for streams—that set forth the applicable tests.

Determining which wetlands and streams are protected by the Clean Water Act can be important for concerned citizens, property owners, and government officials. For example, a water’s jurisdictional status can have implications for drinking water supplies, beneficial uses of water by property owners, the health of fish and other wildlife, the filtering of pollutants, and resilience to flood hazards. As the next chapter explains, three rulings of the Supreme Court provide the legal benchmarks for determining whether any particular water is jurisdictional under the Clean Water Act.

CHAPTER 2

THE SUPREME COURT ON CLEAN WATER ACT JURISDICTION

Since the Clean Water Act was enacted in its modern form in 1972, the U.S. Supreme Court has addressed the Act’s coverage of “waters of the United States” three times. Together, these rulings establish the framework for understanding the scope of federal jurisdiction over wetlands and streams—even as they leave many questions unanswered. This chapter provides an overview of the cases known as *Riverside Bayview*, *SWANCC*, and *Rapanos*.

WETLANDS ADJACENT TO TRADITIONAL NAVIGABLE WATERS ARE COVERED—RIVERSIDE BAYVIEW, 1985

In 1985, the Supreme Court ruled in *United States v. Riverside Bayview Homes, Inc.*,⁴¹ that the Corps had acted reasonably by interpreting the Clean Water Act to require permits for the discharge of fill material into wetlands that were adjacent to “waters of the United States.”⁴² The justices agreed, 9-0, that their decision was “compelled” by “the language, policies, and history of the Clean Water Act.”⁴³ The rule of *Riverside Bayview* is that wetlands adjacent to traditional navigable waters are covered by the Act. No inquiry beyond the showing of adjacency is required.⁴⁴

The Court recognized in *Riverside Bayview* that while “on a purely linguistic level” classifying “‘lands,’ wet or otherwise, as ‘waters’” might appear unreasonable, a simplistic approach to jurisdictional interpretation does justice “neither to the problems faced by the Corps in defining the scope of its authority under [the Clean Water Act], nor to the realities of the problem of water pollution that [the Act] was intended to combat.”⁴⁵ In language that echoes through more than twenty years of subsequent Clean Water Act case law, and remains relevant today, the unanimous Court discussed these practical difficulties:

[T]he Corps must necessarily choose some point at which water ends and land begins. Our common experience tells us that this is often no easy task: the transition from water to solid ground is not necessarily or even typically an abrupt one. Rather, between open waters and dry land may lie shallows, marshes, mudflats, swamps, bogs—in short, a huge array of areas that are not wholly aquatic but nevertheless fall far short of being dry land. Where on this continuum to find the limit of ‘waters’ is far from obvious.⁴⁶

Given the real-world difficulties in drawing sharp jurisdictional lines under the Clean Water Act, the Court explained that the Corps must be granted latitude on matters of jurisdiction.⁴⁷ The Corps’ “ecological judgment about the relationship between waters

and their adjacent wetlands” is sufficient even for wetlands that are “not the result of flooding or permeation by water having its source in adjacent bodies of open water.”⁴⁸

The rule of Riverside Bayview is that wetlands adjacent to traditional navigable waters are covered by the Clean Water Act.

The Court concluded that Congress, by defining the jurisdictional term “navigable waters” to mean “waters of the United States,” had intended that the historical word “navigable” be “of limited import.”⁴⁹ Rather, Congress meant to “repudiate limits placed on federal regulation by past water pollution control statutes” and use its constitutional authority to regulate “at least some waters that would not be deemed ‘navigable’ under the classical understanding of that term.”⁵⁰

USE OF “ISOLATED” PONDS BY MIGRATORY BIRDS DOES NOT CONFER JURISDICTION—SWANCC, 2001

The Supreme Court next weighed in on Clean Water Act jurisdiction in 2001 with its ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*,⁵¹ commonly known as *SWANCC*. In a 5-4 decision, the Court concluded that Congress had not intended the Clean Water Act to reach “isolated ponds, some only seasonal” that were located wholly within one state, where the only asserted basis for jurisdiction was their use as habitat by migratory birds.⁵²

Underlying the result in *SWANCC* was the Court’s determination to give some effect to Congress’s use of the word “navigable” in the Clean Water Act jurisdictional term “navigable waters.”⁵³ Acknowledging *Riverside Bayview*’s characterization of the word “navigable” as being of “limited import,” the Court in *SWANCC* countered that “it is one thing to give a word limited effect and quite another to give it no effect whatever. 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.”⁵⁴ The Court concluded that jurisdiction did not extend to “ponds that are not adjacent to open water,” declining to take the “next step” to expand *Riverside Bayview*, and explaining that “[i]t was the significant nexus between the wetlands and ‘navigable waters’ that informed our reading of the [Clean Water Act]” in that case.⁵⁵ In contrast, the four dissenters contended that the majority’s “miserly construction” of the Clean Water Act incorrectly limited the broad federal jurisdiction that Congress had intended to exercise.⁵⁶

WETLANDS AND STREAMS WITH A “SIGNIFICANT NEXUS” TO TRADITIONAL NAVIGABLE WATERS ARE COVERED—RAPANOS, 2006

In 2006, the Supreme Court handed down its ruling in *Rapanos v. United States*,⁵⁷ the latest word from the Court on the meaning of “waters of the United States.” The question in *Rapanos* was whether the Clean Water Act covers wetlands that do not contain, and are not adjacent to, waters that are navigable in fact.⁵⁸ Specifically, the Court was presented with two different factual scenarios that arose out of two different lower-court cases:⁵⁹ in the first, the wetlands in question *shared a surface water connection* with non-navigable tributaries of traditional navigable waters;⁶⁰ and, in the second, the wetlands at issue were *separated by a berm* from non-navigable tributaries of traditional navigable waters.⁶¹ In a sharply divided, 4-1-4 ruling, a total of five justices agreed to overturn the lower court decisions (which had found Clean Water Act jurisdiction over the wetlands in question) and send the cases back for further consideration.⁶² Four dissenting justices would instead have affirmed the lower courts, validating the Corps’ assertion of Clean Water Act jurisdiction in both cases.⁶³

The five justices who agreed to reverse the lower courts agreed on almost nothing else, including the jurisdictional test that the lower courts would now have to apply. As a result, two very different approaches to establishing Clean Water Act jurisdiction emerged from *Rapanos*.

Justice Anthony Kennedy, who wrote a solo opinion “concurring in the judgment” to return the cases to the lower courts, would find Clean Water Act jurisdiction over wetlands adjacent to non-navigable tributaries where those wetlands have a “significant nexus” with traditional navigable waters.⁶⁴ (Justice Kennedy’s significant nexus test is discussed in detail in Chapter Three of this handbook.)

Justice Antonin Scalia, on the other hand, writing for a plurality of four justices, would limit Clean Water Act jurisdiction to circumstances where a wetland is both adjacent to, and has a continuous surface connection with, a “relatively permanent” body of water that is “connected to traditional interstate navigable waters.”⁶⁵ Although Justice Scalia makes clear that the “relatively permanent” requirement excludes intermittent and ephemeral streams, the plurality test “do[es] not necessarily exclude streams, rivers, or lakes that might dry up in extraordinary circumstances, such as drought”—nor does it necessarily exclude seasonal rivers that contain continuous flow during some months of the year but no flow during dry months.⁶⁶

The Scalia test rests on two premises. First, that the word “waters,” plural, as defined in the dictionary—and hence as presumably intended by Congress in its use of the phrase “waters of the United States” in the Clean Water Act definition of navigable waters—“include[s] only relatively permanent, standing or flowing bodies of water.”⁶⁷ And, second, that the result in *Riverside Bayview* finding jurisdiction over adjacent wetlands “rested upon the inherent ambiguity” in defining where water ends and abutting, or adjacent, wetlands begin, justifying the *Rapanos* plurality’s requirement for a “continuous

surface connection.”⁶⁸ Justice Kennedy accepted neither of the plurality’s two glosses on the Court’s prior decisions, finding the plurality’s proposed jurisdictional test to be “inconsistent with the Act’s text, structure, and purpose”—while still agreeing that the cases needed to be returned to the lower courts for further consideration.⁶⁹

So, which of these two very different approaches to Clean Water Act jurisdiction now provides the controlling test for assessing Clean Water Act jurisdiction—Justice Kennedy’s test or Justice Scalia’s test? Six years after *Rapanos* was decided, the answer remains unclear.

The Supreme Court has yet to revisit the reach of Clean Water Act jurisdiction since *Rapanos*.⁷⁰ And, to date, the U.S. Courts of Appeals that have considered the issue have uniformly agreed only that if a water satisfies the Kennedy significant nexus test, that water is jurisdictional. Beyond this, the views of the appellate courts diverge. Three circuits (the First, Third, and Eighth) have held that Clean Water Act jurisdiction exists if a water meets *either* the Kennedy significant nexus test *or* the Scalia plurality test.⁷¹ This is also the position taken by EPA, the Corps, and the Justice Department.⁷² Three circuits (the Fourth, Seventh, and Ninth) have approved the use of the Kennedy significant nexus test to find jurisdiction—without necessarily foreclosing the possibility that the Scalia plurality test could be used in future cases.⁷³ One circuit (the Eleventh) has held that Kennedy’s significant nexus test alone provides the rule of *Rapanos*.⁷⁴ Finally, two circuits (the Fifth and Sixth) have each considered a post-*Rapanos* case presenting questions of Clean Water Act jurisdiction but declined to decide on a controlling legal standard.⁷⁵ The remaining circuits have not addressed the issue. No appeals court has concluded that the Scalia plurality test alone provides the rule of *Rapanos*.

Rapanos supports a finding of Clean Water Act coverage for a wetland when either—

- *There is a significant nexus between the wetland and navigable waters in the traditional sense (Kennedy significant nexus test); or*
 - *A relatively permanent body of water is connected to traditional interstate navigable waters, and the wetland has a continuous surface connection with that water (Scalia plurality test).*
-

As a practical matter, Justice Kennedy’s test affords jurisdiction over many waters that the plurality’s test would fail to reach. In rare circumstances, Justice Scalia’s test may, however, result in a finding of jurisdiction over wetlands where Justice Kennedy’s test would not.⁷⁶ Perhaps more importantly, Justice Scalia’s test will in most instances be far less labor-intensive to apply than Justice Kennedy’s test, meaning a potential savings of time and money when jurisdiction can be demonstrated under the former.

The next chapter explores the application of the significant nexus test.

CHAPTER 3

USING THE “SIGNIFICANT NEXUS” TEST TO FIND CLEAN WATER ACT COVERAGE FOR WETLANDS AND STREAMS

This chapter describes the “significant nexus” legal test that, following *Rapanos v. United States*, must now be used in many instances to determine whether a particular wetland or stream is covered by the Clean Water Act. Note that although the *Rapanos* ruling was concerned only with the question of whether certain wetlands (those adjacent to non-navigable tributaries) come within the coverage of the Act, both the language and reasoning of Justice Kennedy’s opinion suggest that the significant nexus test can be used to find Clean Water Act jurisdiction over non-navigable streams, as well.⁷⁷

THE SIGNIFICANT NEXUS TEST

In the wake of the Supreme Court’s *Rapanos* decision in 2006, Clean Water Act coverage for a non-navigable wetland or stream will often “depend[] upon the existence of a significant nexus” between that wetland or stream and “navigable waters in the traditional sense.”⁷⁸ When a significant nexus can be demonstrated for a water body, that water is a “water of the United States” and thus jurisdictional under the Clean Water Act term “navigable waters.”

But what *is* a significant nexus?

According to Justice Kennedy, a significant nexus is present where a body of water, “either alone or in combination with similarly situated lands in the region,” significantly affects the chemical, physical, and biological integrity of waters more readily understood as navigable.⁷⁹

A significant nexus exists where a wetland, either alone or in combination with similarly situated lands in the region, significantly affects the chemical, physical, and biological integrity of waters more readily understood as navigable.

A simpler way of stating this test for federal jurisdiction is to ask whether a given wetland or stream, either standing alone or as part of the category of similar geographical features in the area, is important to the health of downstream waters. A brief discussion of the components of the test bears this out.

First, the word “nexus” is one that may be unfamiliar to non-lawyers. Webster’s New International Dictionary (3d. ed. 1967) defines it as “connection, interconnection, tie, or

link” or as “a connected group or series.” It has the same root as the English word “connection.” Though it is a relatively new feature of Clean Water Act law, some version of a significant nexus test has long been used in other legal contexts where a court must decide whether a particular relationship—often one of a complex, factual nature—rises to the level of legal importance.⁸⁰ Note that the test need not necessarily form a two-part inquiry, whereby one must, first, find a nexus and, second, determine its significance.⁸¹ Rather, the “significant nexus” test is usually just a means of referring to a connection or relationship that is legally meaningful.

In Justice Kennedy’s words, the relevant relationship between the wetland in question and the traditionally navigable waters cannot be “speculative or insubstantial.”⁸² Determining that a wetland has a significant nexus with traditional navigable waters is another way of finding that it is an “integral part of the aquatic environment,” and hence jurisdictional as part of the category of “waters of the United States.”⁸³ Rather than establishing a simple but rigid rule that would clearly bring certain types of waters under federal jurisdiction and exclude others, this more flexible, fact-specific test allows federal jurisdiction under the Clean Water Act to attach to *any* non-navigable wetland or stream based on its *effects on downstream, traditional navigable waters*.

Justice Kennedy’s test is derived from the express objectives of the Clean Water Act. He writes that “[t]he required nexus must be assessed in terms of the statute’s goals and purposes . . . to ‘restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.’”⁸⁴ These objectives were included by Congress in the 1972 Clean Water Act specifically to maintain the natural structure and functions of ecosystems.⁸⁵ The Act does not require any demonstration of adverse effects on human health or degradation of waters for the government to assert jurisdiction.⁸⁶

In the course of his opinion, Justice Kennedy identifies various functions and characteristics of wetlands and streams that can help to demonstrate significant effects on downstream water quality. Especially critical are the wetland functions of pollutant trapping and filtering, flood control, and runoff storage.⁸⁷ He also notes the importance of the “ecologic interconnection” that can be inferred between wetlands and adjacent, navigable-in-fact waters.⁸⁸ He indicates that the “volume of flow (either annually or on average),” as well as the “regularity” of flow, for tributaries “may be important” in assessing significant nexus.⁸⁹ He suggests that many specific types of evidence from the record below could contribute to a significant nexus determination for a wetland. These include that the wetland provides habitat, sediment trapping, nutrient recycling, flood peak diminution, and reduction of flow water augmentation, particularly if this evidence can be “supplemented by further evidence about the significance of the tributaries to which the wetlands are connected.”⁹⁰ The presence of surface water connections between wetlands and tributaries of traditional navigable waters also can help to support a finding of significant nexus.⁹¹

So, although Justice Kennedy was unwilling in *Rapanos* to presume the existence of significant effects based *solely* on a wetland’s adjacency and surface connection to non-navigable tributaries, the various types of evidence that he identifies as relevant to the

nexus determination illustrate the wide range of factors that *can* be used to demonstrate significant effects.

IS A HYDROLOGIC CONNECTION ENOUGH? IS IT REQUIRED?

A hydrologic connection between wetlands or streams and traditional navigable waters can help to serve as the basis for a significant nexus sufficient to bring these waters under the Clean Water Act. But Justice Kennedy notes that such a connection is not enough to prove jurisdiction “[a]bsent some measure of the significance of the connection for downstream water quality” that demonstrates that the connection is not “too insubstantial.”⁹² In other words, evidence of “mere hydrologic connection” will not suffice to show jurisdiction in all cases.⁹³

On the other hand, jurisdictional wetlands and streams *need not necessarily* have a hydrologic connection with traditional navigable waters.⁹⁴ Sometimes it is the “absence of hydrologic connection (in the sense of interchange of waters)” that helps to demonstrate a water body’s significance for the larger aquatic system.⁹⁵ For example, as discussed above, wetlands filter pollutants, hold back floodwaters, and store runoff water. These wetland functions protect traditional navigable waters in the same aquatic system, even though the wetlands may have no interchange of waters with downstream, traditional navigable waters.⁹⁶ Indeed, it is this very lack of an interchange of waters prior to any dredge and fill activity that can make the protection of the wetlands critical to the larger statutory scheme.⁹⁷

In sum, although a hydrologic connection between a water body and downstream waters can support a showing of significant nexus, it is not a prerequisite. Conversely, there will be instances in which the absence of a hydrologic connection can actually be used to help demonstrate a significant nexus.

WHAT ARE “SIMILARLY SITUATED LANDS?”

In the case of wetlands, the significant nexus test does not require that each wetland be assessed in isolation—that is, whether a wetland is covered by the Clean Water Act is not necessarily limited to the effects of that lone wetland on the quality of downstream, traditional navigable waters. A significant nexus also exists where the wetland, considered “in combination with similarly situated lands in the region,” significantly affects the chemical, physical, and biological integrity of traditional navigable waters.⁹⁸ The aggregation of wetlands (and potentially other geographic features, such as streams) for purposes of the significant nexus test helps ensure that jurisdictional determinations are taking into account the broader aquatic system.

Justice Kennedy’s opinion does not define the scope of the “region” that may be considered with respect to assessing similarly situated lands. However, his use in *Rapanos* of the term “aquatic system” and his repeated references to the goals of the Clean Water Act⁹⁹ argue in favor of defining the term “region” broadly—perhaps by reference to the

effects that a wetland has within its watershed, as well as any other relevant local circumstances.¹⁰⁰

The principle here can be illustrated by the example of “prairie potholes,” which are depressional wetlands. While a small parcel of land containing prairie potholes, standing alone, may not significantly affect the quality of traditional navigable waters—and, in any event, it may be difficult to document the effects of a single prairie pothole—similarly situated lands (that is, other prairie potholes) in the same region, considered in combination, will almost certainly have significant impacts on the quality of traditional navigable waters within the larger aquatic system.¹⁰¹



Jurisdiction over the prairie pothole wetland (bottom left) depends upon demonstrating a significant nexus to the traditionally navigable waterbody (upper right). Photo by Calvin B. DeWitt.

Justice Kennedy concluded that the Corps would generally be required to establish jurisdiction over wetlands adjacent to non-navigable tributaries on a case-by-case basis.¹⁰² He left open the possibility, however, that the Corps could in the future issue regulations that properly assert jurisdiction over categories of wetlands. When an adequate nexus is established for a particular wetland, he wrote, “it may be permissible, as a matter of administrative convenience or necessity, to presume covered status for other comparable wetlands in the region.”¹⁰³ Neither the Corps nor EPA has yet availed itself of Justice Kennedy’s invitation.

Justice Kennedy’s discussion in *Rapanos* of combining, or aggregating, similarly situated lands for purposes of the significant nexus test was based solely on wetlands.¹⁰⁴ However, his reasoning, which focuses on protecting the integrity of traditional navigable waters, suggests that it may also be possible to aggregate streams under the significant nexus test. To date, the lower courts—insofar as they have touched on these questions—have not reached a uniform conclusion as to whether the significant nexus test applies to streams.¹⁰⁵

THE SIGNIFICANT NEXUS TEST IN THE COURTS, POST-RAPANOS

It can take many years for the lower federal courts to fully interpret and give meaningful shape to a new legal precedent that first appears in a Supreme Court decision. Although the notion of a significant nexus in the Clean Water Act context technically predates the *Rapanos* decision,¹⁰⁶ Justice Kennedy gave the test its present form. It remains a relatively new—but very important—feature of the Clean Water Act legal landscape, and decisions of the lower courts are still giving content to the test and exploring its reach.¹⁰⁷

As courts continue to hand down decisions interpreting the significant nexus test in various contexts, how the test is to be applied may become clearer. Or, courts may disagree on how the test is applied in one or more situations, creating the possibility of further review by the Supreme Court. Regardless, a growing body of case law is now adding to the principles set forth in this handbook and informing how the significant nexus test will be understood and applied in the future.

IS THERE AN EASIER WAY TO DEMONSTRATE CLEAN WATER ACT COVERAGE?

In many instances, applying the significant nexus test to determine Clean Water Act coverage for a wetland or stream will prove labor-intensive, requiring a consideration of wetland and stream functions (in general) and some grasp of how this particular wetland or stream impacts downstream waters (in particular). Sometimes, the significant nexus test may be the only means available to show Clean Water Act coverage—for example, when a wetland is adjacent to a small, intermittently flowing stream.

However, applying the significant nexus test is only one among multiple ways to demonstrate Clean Water Act coverage for wetlands and streams. The reader should always ask whether an easier means of showing jurisdiction is available. For example, is the wetland itself a traditional navigable water? Is the stream continuously flowing or seasonal, which could allow for application of the Scalia plurality test? The checklists in the next chapter set forth the options.

CHAPTER 4

IS A PARTICULAR WETLAND OR STREAM COVERED BY THE CLEAN WATER ACT?

The reach of federal jurisdiction under the Clean Water Act involves the interplay of many factors, including the text and history of the Act, rulings of the U.S. Supreme Court and the lower federal courts, and regulations issued by the Corps and EPA. Taking these variables into account, this chapter presents checklists containing the legal tests that can be used under current law to determine whether a particular wetland or stream is covered by the Clean Water Act. This chapter also surveys the additional sources of scientific, technical, and legal information that can potentially be used to demonstrate federal jurisdiction over a wetland or stream.

The approach presented here is one of various attempts to clarify the scope of Clean Water Act jurisdiction since *Rapanos* was decided.¹⁰⁸

CHECKLISTS FOR ASSESSING CLEAN WATER ACT JURISDICTION

The checklists on pages 18 and 19—one for wetlands, and one for streams—contain questions, each corresponding to a legal rule or test for assessing Clean Water Act jurisdiction. If the answer to *any one of these questions* with respect to a particular wetland or stream is “yes,” the law considers that wetland or stream to come within the category of “waters of the United States”—and, therefore, to be covered by the Clean Water Act. Typically, the party asserting jurisdiction—whether it is the federal government, an environmental organization, or a citizen group—will seek to make the showing using the least expensive, least resource-intensive means available.

Also, it is critical to remember that these checklists—and the rest of the handbook—reflect the law as it stands at the time of publication. New federal court decisions, as well as potential new regulations and administrative guidance documents issued by the Corps or EPA, continue to shape the law of Clean Water Act jurisdiction. In fact, two justices writing separately in *Rapanos*, though coming down on opposite sides of the case, each made clear his view that the agencies needed to issue new regulations—and, indeed, should already have done so.¹⁰⁹ The checklists on the pages that follow must of course be read in light of any such changes. Especially important will be any new Corps or EPA regulations that assert Clean Water Act coverage over designated categories of waters, an action which could be used to more easily demonstrate jurisdiction over particular types of wetlands and streams without the need to make a detailed factual showing for a specific water body.

Be sure to review the table of explanatory notes on page 20, as it contains important information explaining and expanding on both checklists. Also, remember that it will sometimes be possible to demonstrate jurisdiction under more than one test.

Table 1. Wetlands Checklist

A “yes” response to **any** question indicates Clean Water Act (CWA) jurisdiction over the wetland. Be sure to consult the Explanatory Notes on page 20.

| Question | Legal Rule or Test |
|--|--|
| 1 Does the wetland <i>cross state lines</i> ? ¹¹⁰ | Interstate Waters |
| 2 Is the wetland a <i>traditional navigable water</i> ? (A body of water that is currently used, or was used in the past, or is susceptible to use in the future, in interstate or foreign commerce. Includes all waters that are subject to the ebb and flow of the tide.) ¹¹¹ | Traditional Navigable Waters |
| 3 Is the wetland <i>adjacent to traditional navigable waters</i> ? ¹¹² | Adjacency Rule |
| 4 Does the wetland, either <i>alone</i> or <i>in combination with similarly situated lands in the region, significantly affect</i> the— (A) <i>chemical integrity</i> , or (B) <i>physical integrity</i> , or (C) <i>biological integrity</i> —of any <i>traditional navigable waters</i> ? ¹¹³ | Significant Nexus Test (Kennedy <i>Rapanos</i> concurrence) |
| 5 Is the wetland <i>adjacent to</i> —and does it have a <i>continuous surface connection with</i> —a <i>relatively permanent, standing or continuously flowing body of water</i> that is <i>connected to traditional interstate navigable waters</i> ? ¹¹⁴ | Relatively Permanent Water + Continuous Surface Connection Test (Scalia <i>Rapanos</i> plurality) |
| 6 Could the <i>degradation or destruction</i> of the wetland <i>affect interstate or foreign commerce</i> ? Includes any wetland— (A) that is or could be <i>used by interstate or foreign travelers</i> for recreational or other purposes; or (B) from which <i>fish or shellfish are or could be taken and sold in interstate or foreign commerce</i> ; or (C) that is or could be <i>used for industrial purposes by industries in interstate commerce</i> ? ¹¹⁵ | Affecting Interstate or Foreign Commerce Test |

Table 2. Streams Checklist

A “yes” response to **any** question indicates Clean Water Act (CWA) jurisdiction over the stream. Be sure to consult Explanatory Notes on page 20.

| Question | Legal Rule or Test |
|--|--|
| 1 Does the stream <i>cross state lines</i> ? ¹¹⁶ | Interstate Waters |
| 2 Is the stream a <i>traditional navigable water</i> ? (A body of water that is currently used, or was used in the past, or is susceptible to use in the future, in interstate or foreign commerce. Includes all waters that are subject to the ebb and flow of the tide.) ¹¹⁷ | Traditional Navigable Waters |
| 3 Is the stream a <i>relatively permanent, continuously flowing body of water that flows into traditional interstate navigable waters</i> ? ¹¹⁸ | Relatively Permanent Water Test (Scalia <i>Rapanos</i> plurality) |
| 4 Does the stream (whether continuously flowing or not) <i>significantly affect</i> the— (A) <i>chemical integrity</i> , or (B) <i>physical integrity</i> , or (C) <i>biological integrity</i> —of any <i>traditional navigable waters</i> ? ¹¹⁹ | Significant Nexus Test (Kennedy <i>Rapanos</i> concurrence) |
| 5 Could the <i>degradation or destruction</i> of the stream <i>affect interstate or foreign commerce</i> ? Includes any stream— (A) that is or could be <i>used by interstate or foreign travelers</i> for recreational or other purposes; or (B) from which <i>fish or shellfish are or could be taken and sold in interstate or foreign commerce</i> ; or (C) that is or could be <i>used for industrial purposes by industries in interstate commerce</i> ? ¹²⁰ | Affecting Interstate or Foreign Commerce Test |

Explanatory Notes to Tables 1 and 2

Adjacency Rule as Applied to Non-Navigable Tributaries

The simple adjacency rule for wetlands applies when they are adjacent to traditional navigable waters. But a wetland is jurisdictional based solely on its adjacency to a *non-navigable tributary* only if *either* the answer to Question No. 5 on the Wetlands Checklist (Table 1) is “yes,” *or* if the wetland is adjacent to a tributary coming within a category of non-navigable tributaries that the Corps has identified as significant through regulation or adjudication.¹²¹

Relatively Permanent Bodies of Water

The category of relatively permanent bodies of water includes some rivers characterized as “seasonal” that have continuous flow during some months of the year but no flow during dry months. It also includes waters that might dry up in extraordinary circumstances, such as drought. Washes and ephemeral streams are excluded.¹²² Note that the Scalia plurality test from *Rapanos* is *not available in Alabama, Florida, or Georgia*—for either wetlands or streams—following a 2007 decision of the U.S. Court of Appeals for the Eleventh Circuit.¹²³

Affecting Interstate or Foreign Commerce Test

The continuing viability of this jurisdictional test, which appears on both checklists, has been called into doubt by the reasoning of two Supreme Court decisions.¹²⁴ Although the Court has never expressly passed on its legality, and so it technically remains good law, the prudent approach would be to identify and rely on other grounds for CWA jurisdiction for a wetland or stream, if at all possible.

Man-Made Dikes or Barriers, Natural River Berms, and Beach Dunes

The presence of a man-made or natural barrier between a wetland and traditional navigable waters (or their tributaries) is not necessarily a bar to CWA jurisdiction.¹²⁵

Prior Converted Cropland

The CWA does not cover prior converted cropland, an issue that arises most often under the Section 404 program.¹²⁶

Aggregation for Streams under Significant Nexus Test

Under current law, it is uncertain whether the significant nexus test applies to streams, and if it does, whether a stream may be combined with similarly situated lands (or streams) in the region for purposes of assessing its downstream effects—as may be done with wetlands.¹²⁷

Impoundments

Impoundments of waters that are “waters of the United States” are covered by the CWA.¹²⁸

Physical Boundaries of Jurisdiction

Corps regulations fix the precise limits of its jurisdiction over both *tidal waters* and *non-tidal waters*, respectively.¹²⁹

Determining the answer to any of the first three questions on either checklist for a particular water body is typically straightforward. In many instances, this will require little more than a physical inspection of the wetland or stream and its immediate surroundings, or a review of maps or aerial photographs of the area. In contrast, coming up with answers to the remaining questions on each checklist (when necessary) may be much more involved, requiring a rigorous investigation of the site and its broader aquatic system, consultation with the types of scientific literature surveyed in Chapter Five of this handbook, and an examination of other scientific, technical, and legal resources. These resources are briefly introduced in the next two sections.

BEYOND THE HANDBOOK: SCIENTIFIC AND TECHNICAL TOOLS

From a scientific perspective, the most important aspect of assessing jurisdiction over a wetland or stream can be understanding the functions that it performs and, more specifically, the benefits that a specific, local wetland or stream provides for downstream waters within the same watershed. There are many methodologies and procedures for making these assessments, which vary in their rigor and cost. The most prudent (and likely most expensive) option is to retain the services of an environmental consultant to investigate and report on these functions and impacts for the specific wetland or stream at issue. Watershed groups, environmental organizations, and small property owners may have to be more creative in locating free or affordable sources of scientific and technical know-how. One option is to consider seeking free assistance from a local university professor, a PhD candidate, or other graduate-level students in the environmental sciences. Federal and state regulatory offices often have the benefit of their own in-house scientific expertise.

Additionally, scientific and technical literature can serve as important sources of information—though their effective use requires carefully targeting the scientific documents based on the nature and location of the wetland or stream under consideration. Also, these resources typically presume that the reader has a technical background. Assistance from someone with expertise in the field will prove helpful, and may in some instances be essential.

Chapter Five of this handbook introduces and provides a broad overview of the relevant science that can assist in finding a significant nexus for a wetland or stream. The following list illustrates the kinds of scientific and other technical resources and tools that may be consulted in the effort to determine whether a water is jurisdictional (though this list is not intended to be exhaustive):¹³⁰

- Textbooks and treatises;¹³¹
- Delineation manuals for wetlands or streams;¹³²
- Scientific journals;¹³³
- Assessment methodologies for wetlands or streams;¹³⁴

- Technical reports issued by federal and state agencies;¹³⁵
- Watershed plans and assessments;¹³⁶
- Wetland and stream databases;¹³⁷
- Total maximum daily load (TMDL) and water quality management documents;
- Publications, online resources, and research reports produced by state and local agencies and other entities, such as information from natural heritage programs¹³⁸ and state wildlife action plans, and by organizations such as The Nature Conservancy (TNC), the Association of State Wetland Managers (ASWM), and the National Academy of Sciences (NAS);¹³⁹
- Local and regional aerial photographs or satellite images, historical and current;
- Maps, historical and current (*e.g.*, U.S. Geological Survey maps);
- Land records, historical and current;
- Historical evidence (*e.g.*, from books, newspapers, local histories, or testimony of residents) of how waters were used in the past;
- Regional flood analyses;
- Results of water tests that demonstrate downstream flow of pollutants; and
- Results of flow measurements.

The Corps and EPA, in both current and proposed joint guidance documents, have highlighted the role of many of these same tools in conducting jurisdictional analyses: “[m]aps, aerial photography, soil surveys, watershed studies, local development plans, literature citations, and references from studies pertinent to the parameters being reviewed.”¹⁴⁰

In particular, handbook users may find valuable local or regional information in watershed plans prepared for various purposes under state and federal law, or on a voluntary basis. Hundreds of watershed plans have been prepared by local governments, watershed organizations, state agencies, and coalitions of public and private entities for a variety of purposes, including improving water quality, restoring lands and waters, or conducting compensatory mitigation for wetlands or habitat loss. Many of these plans contain data on waters within the watershed, including streams and wetlands, and contain scientific information on regional hydrology, sources of pollution, species or habitats of concern, and various other data potentially useful for site-specific evaluations on aquatic resource functions.

Places to begin a search for watershed planning documents and data are with a state environmental or natural resources agency, county planning office, metropolitan planning organization, Council of Governments, local soil conservation district, or U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) office. These entities often will know whether a watershed plan has been prepared. Another source of watershed information is EPA’s “Surf your Watershed,” a clickable national map that links to data on watersheds throughout the United States.¹⁴¹

BEYOND THE HANDBOOK: LEGAL TOOLS

From a legal perspective, the most authoritative sources for understanding Clean Water Act jurisdiction are the text of the Act;¹⁴² the Supreme Court decisions interpreting the Act;¹⁴³ and the federal agency regulations defining “waters of the United States.”¹⁴⁴ Also important are lower federal court decisions on Clean Water Act jurisdiction;¹⁴⁵ other regulatory actions taken and guidance issued by the Corps and EPA;¹⁴⁶ and administrative opinions that deal with Clean Water Act jurisdictional issues.¹⁴⁷

Although this handbook summarizes the current legal framework governing Clean Water Act coverage for wetlands and streams, it is important to understand that the controlling law and rules can vary slightly—or even significantly—based on *where* in the United States a wetland or stream is located. This is because not every legal question concerning Clean Water Act jurisdiction makes it all the way to the Supreme Court. Rather, legal rulings arising out of each of the different U.S. Courts of Appeals become, effectively, the “last word” on particular legal issues—at least until the Supreme Court decides to take them up, or Congress changes the law. These lower court determinations vary by region, or “circuit,” with questions of Clean Water Act jurisdiction in a particular state being governed by the rulings of the Court of Appeals for the circuit in which the state is located. Furthermore, when rulings of the federal trial courts—known as the U.S. District Courts—are not appealed, they become the last word on a specific jurisdictional issue. These rulings do not bind other courts in future cases (in other words, these rulings do not create legal precedent that other judges are required to follow), but they do usually carry what lawyers call “persuasive authority”—and so should not be ignored, especially when a higher court has yet to address the legal issue in question. The Case Appendix identifies, by judicial circuit and state, all relevant federal judicial decisions and EPA administrative decisions that had been issued as of April 30, 2012.

Of course, most disputes over Clean Water Act jurisdiction never reach the federal courts and are instead resolved by the Corps or EPA at the agency level. As a result, it will in some instances be useful to contact local Corps and EPA offices directly to inquire about possible regional or local variations with respect to Clean Water Act jurisdiction. The Corps has eight U.S. divisions (which follow watershed boundaries), containing 38 domestic districts with offices located throughout the country.¹⁴⁸ Similarly, EPA has ten regions and various local offices nationwide.¹⁴⁹ For general information on which major Clean Water Act regulatory programs are overseen by these agencies, refer to Chapter One of this handbook.

Although a discussion of state law is beyond the scope of this handbook, it is important to remember that states and localities can play a central role in the protection of wetlands and streams. In some states, state law confers a degree of regulatory jurisdiction over *some* wetlands and streams, even in the face of uncertainty about federal coverage.¹⁵⁰ Most states have agencies responsible for environmental issues such as pollution control, water management, and protection of natural resources. Contacting the local office of one of these agencies may be a good first step to determining whether the law in a particular state may be used to protect a specific wetland or stream.

Of course, the most effective way to understand and apply the law with respect to Clean Water Act jurisdiction is with the assistance of competent legal counsel. Quality legal services can be very expensive. Should a user of this handbook determine that a lawyer is required but lack the money to retain one, one option is to contact a local law school, some of which have environmental legal clinics that could potentially provide free legal advice. Another approach is to contact local lawyers with expertise in environmental law or environmental organizations and seek free (also known as *pro bono*) legal assistance. Sometimes an initial consultation with a legal professional will suffice for determining whether legal assistance is needed and on what terms it may be available.

CHAPTER 5

USING SCIENCE TO ESTABLISH A “SIGNIFICANT NEXUS”

Where the handbook user seeks to establish Clean Water Act coverage over a wetland or stream by way of the significant nexus test discussed in Chapter Three, a site-specific evaluation must be supported by scientific evidence for the effects the wetland or stream in question has on the chemical, physical, or biological integrity of traditional navigable waters located downstream. (Though it is important to remember that many wetlands and streams come under federal jurisdiction through one or more of the *other* tests presented in this handbook and so will not require a significant nexus determination.)

This chapter identifies the kinds of accepted scientific evidence that are available to support a significant nexus finding. Because these determinations ultimately depend on a site-specific evaluation, scientific evidence that specifically pertains to the water and/or region in question will tend to provide the strongest support for a jurisdictional finding. However, scientific literature addressing the same or similar resource types—even if pertaining to other geographic regions, such as many of the studies discussed here—can still be very helpful. For ease of reference, this chapter organizes the science by water resource type. A science glossary defining key terms appears on page 44.

WATER RESOURCE TYPES

Scientists have developed several definitions and systems of classification for water resources to assist in understanding their functions. In the United States, definitions and terminology have been resolved to some extent by efforts within the scientific, regulatory, and management communities to define and characterize water resources for purposes of the Clean Water Act.¹⁵¹

Most wetland classification systems recognize the three categories of distinguishing features for these water resources: hydrology, soils, and vegetation. The National Research Council, an arm of the National Academy of Sciences, notes that the latter “diagnostic” features, hydric soils and hydrophytic vegetation, “will be present except where specific physiochemical, biotic, or anthropogenic factors have removed them or prevented their development.”¹⁵²

Although stream classification has received less attention from the scientific community, terms and definitions commonly used by scientists, managers, and the conservation community refer to stream order (where the stream lies within the network extending from headwaters to the seas), patterns of temporal flow (seasonal and other variation in flow), and water source (spring, seep, meltwater, wetland).¹⁵³

For the following review of the science available to support findings of a significant nexus, categories of wetlands are organized based on Mitsch & Gosselink (third edition, 2000, and fourth edition, 2007), the leading wetlands scientific textbook.¹⁵⁴ Seven major types of wetlands are organized into two groups: inland (freshwater marsh, peatland, freshwater swamp, and riparian ecosystem) and coastal (tidal saltwater marsh, tidal freshwater marsh, and mangrove). These wetland categories encompass generally recognizable ecosystems and cover the vast majority of wetlands in North America.¹⁵⁵ Although coastal wetlands will almost always come under federal jurisdiction without requiring a finding of significant nexus, we address them here for completeness. The scientific literature, management strategies, and regulations are often organized into analogous categories.¹⁵⁶

The stream categories (perennial stream or river, ephemeral stream, and intermittent stream) are derived from authoritative scientific articles and regulatory guidance documents that reference common definitions.¹⁵⁷ The relevant wetland and stream categories are set forth in Table 3.

| Inland Wetlands | Coastal Wetlands | Streams |
|---------------------------|-------------------------------|----------------------------------|
| <i>Freshwater marsh</i> | <i>Tidal saltwater marsh</i> | <i>Perennial stream or river</i> |
| <i>Peatland</i> | <i>Tidal freshwater marsh</i> | <i>Ephemeral stream</i> |
| <i>Freshwater swamp</i> | <i>Mangrove</i> | <i>Intermittent stream</i> |
| <i>Riparian ecosystem</i> | | |

SCIENTIFIC EVIDENCE FOR SIGNIFICANT NEXUS

If you are assessing jurisdiction for a wetland or stream that does not readily satisfy the other jurisdictional tests (that is, the water body in question is not itself a traditional navigable water, adjacent or interstate, or does not flow continuously into a traditional navigable water), you will need to determine whether it satisfies the significant nexus test. In other words, you will need to determine whether the wetland or stream in question, considered either alone or in combination with similarly situated lands in the region, significantly affects the chemical, physical, or biological integrity of downstream, traditional navigable waters. Science is the place to begin.

INLAND WETLANDS

Although some inland wetlands clearly demonstrate adjacency and/or continuous surface connections to traditional navigable waters, or are themselves traditional navigable waters, many are likely to be the focus of controversies that arise in the wake of the *Rapanos* ruling. The scientific literature identifies a substantial number of kinds of connections between these waters and traditional navigable waters. The main areas of

linkage include water purification, regulation of flow, biological productivity, flood attenuation, and maintenance of temperature, among others.

Freshwater marsh. Freshwater marshes comprise a diverse set of wetland types. They are primarily characterized as non-tidal, freshwater systems dominated by grasses, sedges, and other emergent herbaceous hydrophytic vegetation. These waters range from the prairie potholes of the Midwest to the marshes of the Great Lakes, the Everglades system of Florida, and the vernal pools of the West.¹⁵⁸ Wetland terms/types that may be associated with this water resource category include *prairie pothole*, *playa*, *depressional wetland*, *fringe wetland*, *riverine marsh*, *Great Lakes marsh*, *oxbow*, *wet meadow*, and *vernal pool*.

Chemical Connections. Depressional wetlands such as playas, prairie potholes, and vernal pools improve water quality by removing sediment and nutrients within watersheds.¹⁵⁹ Several studies, conducted across the country, illustrate the role of freshwater marshes as sinks for nutrients and sediment,¹⁶⁰ and they may be particularly effective at removing nitrogen and phosphorous from agricultural areas.¹⁶¹ Studies conducted in freshwater marshes adjacent to Lake Erie demonstrate that these wetlands effectively reduce nutrient loading into the lake.¹⁶² Research also has shown prairie pothole wetlands to provide important nitrogen sinks, reducing nitrogen loads by as much as 80% within studied watersheds.¹⁶³ Furthermore, drainage or ditching in previously unaltered prairie pothole wetlands has high potential for discharge of nutrients to downstream systems.¹⁶⁴

Physical Connections. Depressional wetlands perform important flow maintenance functions within the watershed, including retaining inflow and temporarily storing flood waters.¹⁶⁵ For example, vernal pools help regulate the water supply of hydrologically connected navigable waters by transferring seepage from surface waters, where it would otherwise be lost to evapotranspiration, to groundwaters that may feed permanent springs or riparian zones.¹⁶⁶ In North Central Florida, “isolated” wetlands have a substantial influence on watershed-level hydrodynamics, storing more than 156 million cubic meters of water.¹⁶⁷ The Delmarva pothole wetlands, abundant along the Maryland-Delaware border, provide temporary storage of surface water, helping to reduce local flooding, and serve as groundwater recharge and discharge areas. Groundwater recharge contributes to stream baseflows that are vital for sustaining aquatic biota in hydrologically connected waters.¹⁶⁸ In the High Plains, playas may serve as important zones of recharge for the High Plains aquifer.¹⁶⁹

Biological Connections. In many instances, freshwater marshes provide the only natural habitat within a watershed, particularly when adjacent lands have been largely converted for agricultural or other purposes. In addition, regardless of the adjacent landscape, these wetlands can provide breeding grounds for species unable to successfully reproduce in faster-moving water and that move between the marsh and other waters throughout their life span. Thus, these wetlands’ role in maintaining populations of invertebrates, waterfowl, fish, and amphibians is critical.¹⁷⁰ For example, freshwater marshes often serve as nurseries and spawning

grounds for fish species. Field research in a Manitoba freshwater marsh has shown the northern pike (*Esox lucius*) to use the wetlands for nursery habitat, with emigration of the fish to other waters during the autumn season.¹⁷¹ A study conducted in an Ontario Great Lakes marsh complex shows several fish species' use of the wetlands for spawning and nursery habitat, demonstrating the importance of these resources for fish reproduction in Lake Ontario.¹⁷² Freshwater wetlands also provide critical stopover habitat for migrating bird species. For example, wetland availability in the Prairie Pothole region of the Northern Great Plains influences nesting decisions of adult female Northern Pintails. Loss of this habitat could have large-scale implications for the species.¹⁷³

Peatland. Peatlands refer mostly to bogs and fens—inland, non-forested, freshwater wetlands that occur commonly in boreal zones. Topographic, chemical, and hydrologic characteristics vary, but these peat-producing systems generally have been shown to provide important sinks for nutrients. Peat within these systems stores nutrients below the rooting zone, making it unavailable to plants. In addition, biogeochemical cycling is slow due to colder temperatures, nutrient deficiency in litter, and waterlogging of substrates.¹⁷⁴ Wetland terms/types that may be associated with this water resource category include: *bog, fen, pocosin, shrub-carr, shrub swamp, moor, and mire.*

Chemical Connections. Positioned at the interface between groundwater and surface water, fens provide the primary buffer between downstream waters and nutrients and other pollutants derived from upland areas. For example, fen soils promote high rates of nitrogen removal, reducing nitrate derived from surrounding agricultural lands, grazing animals, or atmospheric deposition, before it reaches downstream rivers and lakes.¹⁷⁵ Groundwater-fed wetlands, including peatlands, that are associated with springs remove significant amounts of nitrate during the summer months, suggesting that alterations to these wetlands would result in the loss of nutrient retention capacity and the export of nutrients to downstream waters and wetlands.¹⁷⁶ A study conducted in one Minnesota watershed has found peatlands to retain between 30% and 60% of annual nutrient inputs.¹⁷⁷ In some peatland buffers, retention efficiencies of inorganic nitrogen can reach nearly 100%, depending on the hydrologic load during nitrogen addition, the relative size of the buffer area, and its length.¹⁷⁸

Physical Connections. Peatlands also can perform important flow maintenance functions within the watershed, including storing and conserving groundwater, receiving surface water runoff, and maintaining flow.¹⁷⁹ A study of Minnesota peatlands has shown that bogs performed important flow maintenance functions within the watershed specifically because the hydric soils surrounding these wetlands play a key role in groundwater recharge.¹⁸⁰

Fens also moderate the temperature of waters flowing to streams and lakes. In general, fen waters and soils are cooler in the summer and warmer in the winter than air temperatures and other surface waters in the region; thus, fens buffer surface-water temperatures by supplying water that is cooler in summer and warmer in winter than other surface waters.¹⁸¹

Biological Connections. By performing important functions such as water purification, regulation of flow, and maintenance of water temperature,¹⁸² peatlands indirectly maintain the habitat conditions for biota residing in other aquatic systems within the watershed. Peatlands also provide specialized foraging habitat for some species (*e.g.*, black bears).¹⁸³

Freshwater swamp. Freshwater swamps refer to forested, inland, non-tidal, non-riparian wetlands. Found throughout the United States, these wetlands include the cypress swamps of the South, the red maple swamps of the Northeast, and the cedar swamps of the East Coast and Gulf Coast.¹⁸⁴

Chemical Connections. Freshwater swamps have been shown to absorb both sediments and nutrients, particularly phosphorous, and are often studied for their role in wastewater management.¹⁸⁵ For example, scientific research on depressional wetlands in Florida shows that almost all organic matter and nutrients from wastewater inflows are removed or stored within the substrate of the wetlands, although nutrients may be exported downstream when the wetlands' storage capacity is exceeded.¹⁸⁶ And, forested wetlands have been demonstrated to reduce nutrient concentrations in treated effluent to background concentrations present in relatively undisturbed wetlands.¹⁸⁷ Similar studies conducted in other regions of the country also show a significant reduction in nutrients and sediment in waters downstream to freshwater swamps.¹⁸⁸

Physical Connections. Freshwater swamps are subject to flooding that results either directly from precipitation events or surface inflow from upland runoff and/or overflow of flooding streams, rivers, and lakes. In some cases, inflow from groundwater may also contribute. Hydroperiods for freshwater swamps vary widely depending on a variety of factors, including geomorphic position in the watershed, evapotranspiration rates, and seepage, among other distinguishing features.¹⁸⁹ These hydrologic features can result in various benefits for downstream waters (depending on individual hydrologic processes), including reduction of downstream peak discharge and volume; recharge of aquifers; and maintenance of seasonal flows, baseflow for streams, and groundwater supplies.¹⁹⁰ A study of Florida cypress swamps has found that a removal of 80% of the wetlands would result in a 45% reduction in associated groundwater supplies.¹⁹¹ Groundwater supplies may play an important role in maintenance of downstream flow and/or drinking water supply. Forested wetlands overlying permeable soil may release up to 100,000 gallons/acre/day into groundwater.¹⁹²

Biological Connections. Field research in Carolina bays shows that these depressional wetlands, which are located throughout the Atlantic Coastal Plain from Florida to Virginia and occur most often in the Carolinas, are critical to the survival of multiple species of snakes and amphibians that reside in surrounding uplands and/or larger basins.¹⁹³ For example, two species of snakes within the genus *Fernancia* live in Carolina bays as juveniles, where they feed primarily on larval salamanders, and as adults in river swamps and streams considered to be waters of the United States.¹⁹⁴ A decrease in forested wetland buffers may also cause local

extinctions of fish taxa or accelerate the dominance of tolerant species in floodplain lakes.¹⁹⁵

Riparian ecosystem. Like freshwater swamps, riparian wetlands are forested, inland, non-tidal wetlands—but they are distinguished by their location in the floodplain along river and stream corridors. In the United States, riparian wetlands range from the bottomland hardwood forests of the Southeast to the riparian ecosystems lining the river and stream corridors of the arid Southwest. These wetlands are linear and provide an important link between stream and river systems and adjacent uplands. Indeed, flooding from adjacent waters contributes to these wetlands' regulation of nutrients and organic matter from adjacent uplands. Riparian wetlands also are extremely productive and diverse ecosystems that provide important habitat for wildlife, particularly in the arid West, where they may support the only dense vegetation within miles.¹⁹⁶ Wetland terms associated with this water resource category include: *bottomland hardwood swamp*, *bottomland hardwood forest*, *floodplain forest*, *riparian buffer*, *mesic riparian ecosystem*, *bosque*, *streambank vegetation*, and *southern deepwater swamp*.

Chemical Connections. Riparian wetlands play an important role as a sink for nutrient runoff from adjacent uplands and as a nutrient transformer for water flow downstream.¹⁹⁷ Riparian and floodplain wetlands also typically remove sediment from the surrounding watershed.¹⁹⁸ For example, riparian wetlands in the Mississippi River Basin remove nitrates that cause eutrophication in the Gulf of Mexico. Resulting hypoxia and algal blooms are demonstrated to have severe effects on Gulf aquatic life.¹⁹⁹ A 1990 study in South Carolina demonstrated that bottomland hardwood swamps filtered a quantity of pollutants from watershed water resources equivalent to that which would be removed by a \$5 million wastewater treatment plant.²⁰⁰

Physical Connections. Hydrologic cycles for riparian systems vary widely and are determined by many factors, including climate (*e.g.*, variations are great between the eastern and western regions of the United States); watershed characteristics (*e.g.*, size and slope of the watershed, elevation); geomorphic characteristics (*e.g.*, zones of erosion or sediment storage, transport, or deposition); and riparian vegetation.²⁰¹ Hydrogeomorphic features may result in various benefits for downstream waters (depending on individual processes within reaches of the system), including maintenance of seasonal flows, baseflows, and surface water temperatures and reduction of downstream peak discharge and volume.²⁰² For example, one study shows that loss of floodplain forested wetlands and confinement by levees has reduced the floodwater storage capacity of the Mississippi River by 80%.²⁰³ Another study shows that there can be a very close relationship between the groundwater level in riparian wetlands and the surface water level in the adjacent river.²⁰⁴

Biological Connections. Because riparian wetlands represent the transition between terrestrial and aquatic systems, the diversity and abundance of species is quite high in these systems. Indeed, multiple species of both flora and fauna rely on this valuable habitat.²⁰⁵ For Eastern riparian systems, several scientific studies illustrate the dependence of fisheries on these wetlands. Fish spawn and feed within the

floodplains of riparian systems during flood events;²⁰⁶ in addition, productivity in large, lowland rivers depends on the exchange of nutrients with floodplains.²⁰⁷ In the Western United States and Canada, healthy salmon habitat depends on intact riparian wetlands.²⁰⁸

Watersheds dominated by riparian wetlands export large amounts of carbon critical to downstream marine and lacustrine ecosystems.²⁰⁹ Particulate carbon is important for shredders and filter-feeders of these systems,²¹⁰ while dissolved carbon is important for the microorganisms of these systems.²¹¹

COASTAL WETLANDS

Disputes over federal Clean Water Act jurisdiction are less likely to arise in the context of coastal wetlands. Federal jurisdiction over coastal waters is among the oldest and best recognized forms of regulatory jurisdiction.²¹² However, below we briefly survey coastal wetlands' chemical, physical, and biological connections to traditional navigable waters.

Tidal saltwater marsh. Tidal salt marshes form along coastlines in temperate zones wherever the accumulation of sediments is equal to or greater than the rate of land subsidence and where there is adequate protection from destructive waves and storms. These resources are characterized by tidal flooding frequency and duration, soil salinity and permeability, and nutrient availability, and are dominated by salt-tolerant grasses and rushes. Tidal salt marshes are extremely complex and productive ecosystems that export organic energy to adjacent coastal waters through currents and species movement, among other mechanisms, and provide sinks for nutrients.²¹³ In the United States, salt marshes are most prevalent on the East Coast and Gulf Coast (*e.g.*, the Chesapeake Bay region and the Mississippi Delta region), but they are also found in narrow belts along the West Coast and the coastline of Alaska.²¹⁴ Wetland terms associated with this water resource category include: *saltwater marsh*, *brackish marsh*, and *estuarine emergent wetland*.

Chemical Connections. Nutrient dynamics can be extremely complicated and vary widely among tidal marsh systems. However, salt marshes have been shown to provide important sources and sinks for nutrients, particularly nitrogen. Nutrients and other organic matter, such as detritus from marsh surfaces, “outwell” from these highly productive ecosystems into adjacent estuaries and ocean waters, accounting for a significant portion of phytoplankton production in these waters.²¹⁵ Some salt marshes may also provide a sink for nutrients carried in through precipitation, surface water, groundwater, and tidal exchange. Nitrogen fixation and phosphorous- and nitrogen-rich organic matter that accumulate as peat provide storage of these nutrients.²¹⁶ Phosphorous has also been shown to accumulate in high concentrations in the soils of tidal salt marshes, without limiting the growth of their resident plant species.²¹⁷

Physical Connections. The ebb and flow of tides over mudflats form “tidal creeks,” which provide for energy transfer between the marsh itself and adjacent traditional navigable coastal waters. Tidal creeks, which flow in both directions, maintain a

salinity level similar to that of adjacent coastal waters. They vary in water depth as water fluctuates, and differences in depth, duration of inundation, and salinity form many “zones” of vegetation and many aquatic food chains that overlap with those of adjacent navigable waters. Tidal salt marshes also accumulate sediment from river silt, organic productivity, or marine deposits.²¹⁸

Biological Connections. Tidal salt marshes have extremely high rates of primary productivity and have been shown by a number of scientific studies to support the spawning and feeding habitats of several marine organisms, many of which are commercially important.²¹⁹ For example, estuaries provide critical nursery habitat for steelhead trout populations in California.²²⁰ Many migratory fish species feed along the edge of tidal salt marshes or move into the marsh to feed during high tides.²²¹ Other marine- and estuarine-dependent migratory species use the marsh for food or shelter intermittently, spawning offshore, migrating into the marsh as juveniles in search of food and shelter, and returning to the estuary or offshore as adults.²²²

Benthic organisms also play an important role. Microbial fungi and bacteria feed on marshes’ decaying plant biomass and are, in turn, preyed upon by microscopic animal life, or meiofauna. Gastropods, polychaetes, amphipods, and crustaceans then prey upon these meiofauna. For example, blue crab (*Callinectes sapidus*), the focus of substantial commercial and recreational fishing activity in the Chesapeake Bay, is an important component of this detrital food chain as a predator of the meiofauna that reside in the tidal salt marshes of the Bay.²²³

Tidal freshwater marsh. Tidal freshwater marshes are located near enough to the coast to be tidally influenced, but they maintain lower salinity levels than the shoreward tidal salt marsh. These wetland resources typically occur where a major river meets coastal waters, predominately along the Atlantic and Northern Gulf Coasts in the United States. Plant diversity and primary productivity in these wetlands are particularly high due to the reduced salt stress. Tidal freshwater marshes also support the largest and most diverse bird populations of all wetland habitats.²²⁴

Chemical Connections. Because of their close proximity to rivers used both for shipping and as a source of freshwater for residential and commercial purposes, tidal freshwater marshes are often found where major cities and industries have developed. Due to their key location, these wetlands absorb pollution from development and serve as efficient sinks for metals and nutrients that would otherwise flow into adjacent rivers.²²⁵ For example, reed roots and bacteria in tidal freshwater marshes have been shown to retain nitrogen over long periods of time.²²⁶

Physical Connections. Flooding within freshwater tidal marshes varies regionally, depending on river flow, tidal cycles, elevation, gradients of soil, physical and chemical attributes, and vegetation.²²⁷ These marshes, in turn, help to regulate the volume and flow to adjacent waters.²²⁸

Biological Connections. Tidal freshwater marshes provide important habitat for many free-swimming aquatic species. For example, anadromous and semi-anadromous fish species pass through freshwater marshes on spawning runs to freshwater streams. The marshes also provide habitat for juveniles of these fish species. Many herring and shad species (*Alosa* spp. and *Dorosoma* spp., respectively) complete the juvenile stage of their life in tidal freshwater marshes, where they not only feed on invertebrate species but also provide prey for important sportfish species such as striped bass (*Morone saxatilis*) and catfish (*Ictalurus* spp.). As they mature, they migrate downstream and offshore.²²⁹

Mangrove. Mangrove wetlands replace tidal saltwater marshes along coastlines in subtropical and tropical latitudes; in the United States, they are located only in southern Florida and Puerto Rico.²³⁰ Like tidal salt marshes, they may form only where there is adequate protection from destructive waves and storms and are characterized by tidal flooding frequency and duration and saline waters.²³¹ Mangrove wetlands are well known for providing unique habitat, stabilizing shorelines, protecting inland areas during hurricanes, exporting nutrients and organic matter to coastal habitats, and accumulating carbon and other nutrients.²³²

Chemical Connections. As with tidal salt marshes, mangrove wetlands “outwell” organic material, including organic carbon and nutrients, important to the function of adjacent coastal waters and their overall secondary productivity.²³³

Physical Connections. Mangroves slow erosion and increase the accretion of sediments for coastal areas. Research shows that removal of mangroves contributes to erosion of coastal resources.²³⁴

Biological Connections. Studies have shown mangrove wetlands to provide shelter for juvenile fish species and an important food source for many commercially and recreationally important fish species.²³⁵ Seasonal availability of mangrove detrital vegetation is clearly connected to adjacent plankton and seagrass productivity and fish movement and secondary productivity in open waters.²³⁶

STREAMS

Headwater streams are the uppermost, low-order (first- and second-order) streams of a watershed. Although headwater streams comprise the majority of streams in the United States, both in terms of numbers and length, their full extent has been neither mapped nor comprehensively studied.²³⁷ Stream segments are often called “reaches,” and headwater streams may also be referred to as *startreaches*. Headwater streams may be perennial, ephemeral, or intermittent.

Perennial streams, both those classified as low-order and otherwise, contain water year-round (or almost year-round), have a well-defined channel, and may be fed by a variety of sources, including groundwater, snowmelt, runoff, and/or stormwater. **Ephemeral streams** flow only in direct response to precipitation, and they do not generally contain water except during and after significant storm events. Ephemeral

stream channels are not well defined and lie above the water table at all times. Water resource terms associated with ephemeral streams include *arroyo* and *drywash*. **Intermittent streams** may be fed by numerous sources, including groundwater, snowmelt, or precipitation, and they also do not flow continuously, typically ceasing during dry periods. Intermittent stream channels are well defined, but, like ephemeral streams, lack the hydrologic characteristics associated with perennial streams.²³⁸ It is important to examine the entire stream reach when applying the jurisdictional tests.²³⁹



A first order stream. Photo by Joy Zedler.

Chemical Connections. Headwater streams strongly influence the water quality of downstream rivers, lakes, and estuaries.²⁴⁰ Streams efficiently remove and transform nutrients, such as inorganic nitrogen derived from agriculture, human and animal waste, and fossil fuel combustion, before they reach downstream waters where they can disrupt forest ecosystems, acidify lakes and streams, and degrade coastal waters through eutrophication, algal blooms, and hypoxia.²⁴¹ In fact, scientific research suggests that the smallest streams provide the most rapid uptake and transformation of inorganic nitrogen.²⁴² Ephemeral and intermittent streams maintain water quality despite their lack of continuous flow because fertilizers and other pollutants are most likely to enter stream systems during storms and other times of high runoff—the same times when ephemeral and intermittent streams are likely to have a continuous water flow and are processing nutrients.²⁴³

Physical Connections. Headwater streams also play an important role in regulating water flow and reducing erosion and sedimentation.²⁴⁴ Streams absorb runoff and snowmelt, providing water storage that reduces downstream flooding. Natural streambeds, which provide rough and bumpy passages for water, reduce the velocity of water moving over the landscape, not only allowing for increased infiltration, but also reducing the ability of moving water to erode streambanks and carry sediment downstream.²⁴⁵

Ephemeral streams can retain a significant amount of sediment despite their temporary nature. In Oregon, researchers have found that 60% to 80% of the sediment generated from forest roads was stored in ephemeral stream pools.²⁴⁶ In the Bear River Basin of California, stream channels continue to store hydraulic gold mining sediment more than a century after the cessation of mining.²⁴⁷ In arid parts of the country, ephemeral streams are an integral part of the regional hydrology, despite temporal and physical gaps in the surface flow to downstream wetlands, streams, and rivers. These streams recharge groundwater systems that ultimately support springs and aquifers, baseflow for streams and rivers, and other isolated waters. Indeed, ephemeral streams in arid and semi-arid basins may provide the primary or only point of recharge, thus playing an important role in groundwater/surface water dynamics.²⁴⁸ Alteration of small streams disrupts both the quantity and availability of water to downstream river systems.²⁴⁹

Biological Connections. Many fish species rely on headwater streams for habitat through one or all of their life stages. Various trout, minnow, and small sunfish species reside in headwater streams, moving in and out as the stream system expands and contracts; other species, such as cutthroat trout (*Oncorhynchus clarki*) and chum salmon (*Oncorhynchus keta*), reside in larger, downstream systems but use small streams for spawning and as nurseries.²⁵⁰ For example, the tributaries of Oregon's Rogue River, which are dry in the summer months, support spawning steelhead salmon (*Oncorhynchus mykiss*) in winter months.²⁵¹ One study conducted in Sagehen Creek, California has reported that nearly half of the adult rainbow trout population spawned in an intermittent tributary.²⁵² Other fish species rely on streams for temperature refuges during extreme winter and/or summer temperatures. For example, the Arkansas darter (*Etheostoma cragini*) and brook trout (*Salvelinus fontinalis*) rely on the cool temperatures streams maintain during the heat of the summer months and/or drought.²⁵³ Intermittent and ephemeral streams may also be important for the conservation of freshwater diversity. For example, the hyporheic zone of intermittent streams may provide important habitats for two species of imperiled crayfish in Missouri during seasonal drying periods.²⁵⁴

Small streams also provide feeding grounds for migrants from higher-order waters. High levels of detritus, primary productivity, and retention capacity result in rich food sources for primary consumers such as crustaceans and mollusks, which are in turn preyed upon by both resident and migrant vertebrates.²⁵⁵ For example, research conducted in the Northwest demonstrates that intermittent streams and ephemeral swamps contribute to both the size and mass of the coho salmon (*Oncorhynchus kisutch*) population.²⁵⁶ Finally, small streams also maintain biodiversity

in downstream waters by providing both movement corridors for plants and animals across the landscape and a source of colonists for recovery of downstream systems following a disturbance.²⁵⁷

MAKING CONNECTIONS AMONG WATER RESOURCES

The functions of traditional navigable waters, wetlands, and non-navigable streams are almost inevitably connected to conditions in other wetlands and streams in the surrounding landscape. Indeed, the National Research Council states that common wetland and stream functions within the landscape, such as maintenance of biodiversity, flood control, and water quality, are determined by the number, position, and extent of the *collection* of wetlands and streams in a watershed rather than by any individual resource.²⁵⁸ Thus, impacts to an individual wetland or stream may affect associated traditional navigable waters primarily in combination with impacts to the assemblage of wetlands and/or streams in a region.

Cumulative impacts and effects are seldom addressed comprehensively in environmental management, largely due to the lack of availability of tools for conducting such analyses.²⁵⁹ However, there are some examples of cumulative impact assessments being developed to better assess the broader, regional effects resulting from impacts to individual resources. For example, EPA's 2005 publication *Hydrogeomorphic Wetland Profiling: An Approach to Landscape and Cumulative Impacts Analysis* provides a method for characterizing wetlands and their functions at landscape scale.²⁶⁰

Regional or watershed-level planning efforts also can provide a valuable resource for understanding the collective effects of aquatic resources within specific regions. For example, scientific support for assessing a particular wetland or stream's significant nexus to traditional navigable waters, especially in combination with other waters, may be contained in: basin-wide water quality management plans or analyses; regional flood analyses; Total Maximum Daily Load ("TMDL") documents; the information available through natural heritage programs or plans;²⁶¹ state wildlife action plans that provide geographically specific ecological data; and other watershed or landscape planning and analysis documents developed by local governments or conservation organizations, state resource or pollution control agencies, or various federal natural resources agencies. Watershed plans may well be among the most useful resources in beginning a search for a significant nexus.

The body of scientific literature available to support determinations of significant nexus continues to grow, and scientists are now beginning to identify and provide additional metrics that can help inform regulatory decision-making. Three such metrics include maximum duration of continuous flow (to assess hydrologic permanence); proportion of total benefit to the navigable water contributed by a non-navigable stream and adjacent wetland class; and proportion of time that navigable water receives benefit from a non-navigable stream and adjacent wetland.²⁶² Additional tools, including drainage- and valley-scale variables as well as rapid reach-scale variables, have also been developed for determining the hydrologic permanence of headwater streams in a regulatory

context.²⁶³ The effective application of these metrics will depend on further research on the development of indicators and classification systems. In fact, the development and use of large-scale, regional resource inventories and tools may well prove critical to improving the integration of science and policy underlying Clean Water Act jurisdictional determinations.²⁶⁴



This creek, not itself navigable, is continuously flowing and connects to a Wisconsin lake popular for fishing and boating. Photo by Joy Zedler.

New tools continue to become available. EPA and the Corps recently introduced the “Streamflow Duration Assessment Method for Oregon,” which the agencies characterize as “a scientific tool . . . to provide a rapid assessment framework to distinguish between ephemeral, intermittent and perennial streams. This information helps determine whether a stream may be subject to jurisdiction under Section 404 of the Clean Water Act.”²⁶⁵ Also, EPA is expected to soon release a “connectivity” analysis of existing studies demonstrating how headwater streams and wetlands connect with and impact downstream, traditional navigable waters.²⁶⁶

WHAT WILL THE CORPS AND EPA CONSIDER?

The Corps and EPA have issued guidance documents—and proposed a new draft guidance—intended to clarify how the agencies will identify jurisdictional waters. The preceding scientific discussion provides a useful supplement to using these agency guidance documents, which are introduced in the next chapter.

CHAPTER 6

THE FUTURE OF FEDERAL JURISDICTION OVER WETLANDS AND STREAMS

This handbook is intended to provide an approach to understanding Clean Water Act coverage for wetlands and streams that is based on the law and science as they exist today. But Clean Water Act jurisdiction is not a static concept. Jurisdictional analyses must continue to evolve in response not only to federal court rulings, but also to actions taken by the Corps and EPA (in the form of guidance documents and rulemaking) and potentially, at some point, in response to a Congressional amendment to the Act intended to clarify the law's scope. At the same time, the body of scientific research and literature exploring the connectivity of water resources continues to grow and mature. We briefly examine each of these dynamic factors.

THE LAW

CASES DECIDED BY THE LOWER FEDERAL COURTS

The law of Clean Water Act jurisdiction for wetlands and streams remains very much in flux in the wake of the Supreme Court's 2006 ruling in *Rapanos v. United States*. With few lawsuits ever reaching the Supreme Court, the rulings of the lower federal courts are an essential piece of the jurisdictional puzzle. The reader should watch for new interpretations of Clean Water Act jurisdiction that may appear in forthcoming federal court decisions. The Case Appendix to this handbook contains a full listing of cases decided through April 2012. It also highlights certain trends that have emerged across the courts of appeals. These rulings will continue to issue, and differing interpretations arising out of these courts may ultimately lead to the Supreme Court deciding to revisit one or more post-*Rapanos* legal issues.

AGENCY GUIDANCE, OR NEW REGULATIONS, OR BOTH?

Following the Supreme Court's decision in *Rapanos*, the Corps and EPA under the Bush Administration issued an initial joint guidance document in June 2007 designed to guide Corps district offices and EPA regions in the implementation of the ruling in the field.²⁶⁷ After taking public comment on the guidance for seven and a half months,²⁶⁸ the agencies issued a revised guidance document in December 2008 that superseded the earlier one.²⁶⁹ This Bush Administration guidance document was intended “[t]o ensure that jurisdictional determinations, administrative enforcement actions, and other relevant agency actions are consistent with the *Rapanos* decision”—but only in the context of Clean Water Act Section 404.²⁷⁰ Also, the guidance is just that: a resource intended to guide the agencies. It imposes no legally binding requirements—on the agencies, industry, or anyone.²⁷¹ Notwithstanding the guidance document, the Corps

and EPA, like everyone else, continue to be bound by the law as passed by Congress and interpreted by the courts.

Although the 2008 guidance is still in effect, the Corps and EPA under the Obama Administration issued a new draft proposed guidance in May 2011.²⁷² According to the agency fact sheet accompanying the proposed draft guidance, it would “replace previous guidance to reaffirm protection for critical waters.” The draft guidance was developed to “provide clearer, more predictable guidelines for determining which water bodies are protected by the Clean Water Act;” and, once finalized, it would be followed by a formal rulemaking.²⁷³ The draft proposed guidance would expressly apply across Clean Water Act programs, and not just to Section 404.²⁷⁴

The agencies accepted public comment on the draft proposed guidance for three months, through July 2011.²⁷⁵ Approximately 230,000 comments were received.²⁷⁶ The draft proposed guidance has generated a great deal of debate,²⁷⁷ including both support²⁷⁸ and opposition.²⁷⁹ As of the publication date for this handbook, the guidance had yet to issue in final form—although in February 2012, the Administration sent the guidance to the White House Office of Management and Budget for final review.²⁸⁰

What about new agency regulations under the Clean Water Act? EPA has announced its intention to propose a new “Clean Water Protection Rule,” but when this will occur remains unknown.²⁸¹ At the time of publication of the handbook, it is unclear whether the agencies will issue a final guidance document in advance of this rulemaking—to serve as a bridge between the 2008 guidance and any forthcoming new rules—or whether the current guidance effort will be abandoned.

On each of the following two pages is a “Summary of Key Points” extracted from, respectively, the current 2008 guidance document and the 2011 draft proposed guidance, as provided by the agencies.

December 2008 Agency Guidance: Summary of Key Points²⁸²

The agencies will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (*e.g.*, typically three months)
- Wetlands that directly abut such tributaries

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (*e.g.*, gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

The agencies will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters
 - Significant nexus includes consideration of hydrologic and ecologic factors
-

May 2011 Draft Proposed Agency Guidance: Summary of Key Points²⁸³

Based on the agencies' interpretation of the statute, implementing regulations and relevant caselaw, the following waters are protected by the Clean Water Act:

- Traditional navigable waters;
 - Interstate waters;
 - Wetlands adjacent to either traditional navigable waters or interstate waters;
 - Non-navigable tributaries to traditional navigable waters that are relatively permanent, meaning they contain water at least seasonally; and
 - Wetlands that directly abut relatively permanent waters.
-

In addition, the following waters are protected by the Clean Water Act if a fact-specific analysis determines they have a "significant nexus" to a traditional navigable water or interstate water:

- Tributaries to traditional navigable waters or interstate waters;
 - Wetlands adjacent to jurisdictional tributaries to traditional navigable waters or interstate waters; and
 - Waters that fall under the "other waters" category of the regulations. The guidance divides these waters into two categories, those that are physically proximate to other jurisdictional waters and those that are not, and discusses how each category should be evaluated.
-

The following aquatic areas are generally not protected by the Clean Water Act:

- Wet areas that are not tributaries or open waters and do not meet the agencies' regulatory definition of "wetlands";
 - Waters excluded from coverage under the CWA by existing regulations;
 - Waters that lack a "significant nexus" where one is required for a water to be protected by the CWA;
 - Artificially irrigated areas that would revert to upland should irrigation cease;
 - Artificial lakes or ponds created by excavating and/or diking dry land and used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
 - Artificial reflecting pools or swimming pools created by excavating and/or diking dry land;
 - Small ornamental waters created by excavating and/or diking dry land for primarily aesthetic reasons;
 - Water-filled depressions created incidental to construction activity;
 - Groundwater drained through subsurface drainage systems and
 - Erosional features (gullies and rills), and swales and ditches that are not tributaries or wetlands.
-

In light of the agencies' current position that the 2008 guidance document should be replaced,²⁸⁴ coupled with the uncertainty as to whether, and if so when, the 2011 draft proposed guidance document will be finalized and supersede existing guidance, this handbook treats neither guidance in detail. Both are available online.²⁸⁵

A CONGRESSIONAL AMENDMENT TO THE CLEAN WATER ACT?

The legal landscape for Clean Water Act jurisdiction could of course shift in another, more fundamental way: Congress could amend the Act to clarify the scope of federal jurisdiction over wetlands and streams.²⁸⁶

The Supreme Court's interpretation of the Act's reach has, to date, been heavily influenced by Congress's use of the jurisdictional term "navigable waters" in the Clean Water Act and in other laws protecting the Nation's waters.²⁸⁷ If Congress were to enact an amendment deleting the term "navigable"—or otherwise clarifying the intended scope of the Act—regulators, landowners, and other citizens would need to reevaluate their approach to federal jurisdiction over wetlands, streams, and other waters accordingly. A Congressional amendment to the Clean Water Act to clarify the law's application to certain categories of waters also is likely to present squarely the question of Congress's underlying constitutional authority to protect those waters.²⁸⁸ Although the Supreme Court was presented with this constitutional issue in both *SWANCC* and *Rapanos*, the Court has yet to confront it head on.²⁸⁹ A legislative amendment would almost certainly lead to renewed constitutional challenges and, sooner or later, to review by the Supreme Court.

Since 2006, multiple efforts to enact just such a "legislative fix" in response to the *SWANCC* and *Rapanos* rulings have materialized—but none has succeeded. The most recent attempt to amend the Clean Water Act from the perspective of returning to the pre-*SWANCC* status quo on federal jurisdiction took the form of the "America's Commitment to Clean Water Act," introduced in the House of Representatives in April 2010.²⁹⁰ Prior, similar legislative efforts came under the rubric of the "Clean Water Restoration Act."²⁹¹ More recently, Senator Rand Paul introduced the "Defense of Environment and Property Act of 2012," which would, among other things, greatly restrict federal Clean Water Act jurisdiction and narrow EPA and Corps authority under the Act.²⁹²

Given the current political climate in Washington, it appears unlikely that any amendment to clarify the scope of the Clean Water Act will be enacted in the near future.

THE SCIENCE

The existing scientific literature, as surveyed in Chapter Five, serves to illustrate many of the important impacts that wetlands and streams have on the chemical, physical, and biological integrity of downstream, traditional navigable waters. The science in hand

can, in many instances, help provide a basis for identifying the existence of a significant nexus, as that test is explained in Chapter Three.

However, much of the published science surrounding the important ecological functions and ecosystem services provided by wetlands and streams does not now focus on their direct influence on the health and integrity of *traditional navigable waters* in the landscape. Instead, it frequently focuses on their broader ecosystem value for habitat, flood attenuation, water purification, and other functions. Over the long term, successfully protecting the full range of wetlands and streams—under the present legal framework—will likely require more detailed scientific information about these resources' effects on the chemical, physical, and biological integrity of traditional navigable waters.²⁹³ Generating and collecting the necessary new research may, in turn, require the investment of additional resources by government and the academy, particularly where specific wetland types have not previously been the subject of academic inquiry.

For example, additional research on the connections between intermittent and ephemeral streams—including the arroyos and washes of the Southwest—and traditional navigable waters is likely needed to provide more thorough documentation of the conditions demonstrating a significant nexus. Similarly, the relationships between complexes of mixed wetland types and traditional navigable waters will need exploration—both by government scientists and by privately funded research efforts, if science is to provide the tools needed to apply the prevailing legal tests for Clean Water Act jurisdiction described in this handbook.

SCIENCE GLOSSARY

ANADROMOUS

Refers to marine species that spawn in freshwater streams.

BENTHIC/BENTHOS

An organism that feeds on the sediment at the bottom of a water body such as an ocean, lake, or river.

BIOGEOCHEMICAL CYCLING

The transport and transformation of chemicals in ecosystems.

DEPRESSIONAL

A wetland located in a depression in the landscape so that the catchment area for surface runoff is generally small.

ESTUARINE

Pertaining to the general location where rivers meet sea and freshwater mixes with saltwater.

EUTROPHICATION

Process whereby an aquatic ecosystem such as a lake, estuary, or wetland goes from an oligotrophic (nutrient poor) to a eutrophic (nutrient rich) condition.

HERBACEOUS

With the characteristics of an herb; a plant with no persistent, woody stem above ground.

HYDRIC SOILS

Soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

HYDROGEOMORPHOLOGY

Combination of climate, basin geomorphology, and hydrology that collectively influences a wetland's function.

HYDROLOGY

The science dealing with the properties, distribution, and circulation of water.

HYDROPHYTIC VEGETATION

Plant community dominated by hydrophytes, or plants adapted to wet conditions.

HYPORHEIC

Zone beneath and adjacent to a stream where surface water and groundwater mix.

HYPOXIA

Waters with dissolved oxygen less than 2 mg/L.

LACUSTRINE

Pertaining to lakes or lake shores.

MEIOFAUNA

A type of microfauna (the smallest animals in a community, not visible to the naked eye) that inhabit algae, rock fissures, and superficial layers of the muddy sea bottom; they are smaller than 1 millimeter but larger than 0.1 millimeter.

PRIMARY PRODUCTIVITY

The rate at which biomass is produced by organisms that synthesize complex organic substances from simple inorganic substrates, such as in photosynthesis and chemosynthesis.

RIPARIAN

Pertaining to the bank of a body of flowing water; the land adjacent to a river or stream that is, at least periodically, influenced by flooding.

SECONDARY PRODUCTIVITY

The rate of biomass production resulting from the assimilation of organic matter produced by a primary consumer; production by organisms (mainly animals) that consume primary producers (mainly plants).

STREAM ORDER

A numerical system that classifies stream and river segments by size according to the order of tributaries. The assigned number (for example, first, second, third, etc.) designates the relative position of the stream segment in a drainage basin network (that is, first order corresponds to the smallest, unbranched segments; second-order corresponds to the segment produced by the junction of two first-order streams; third-order corresponds to the segment produced by the junction of two second-order streams; and so on).

SUBSIDENCE

Sinking of ground level, caused by natural and artificial settling of sediments over time.

SUBSTRATE

The surface or medium that serves as a base.

Glossary Sources:

Mark M. Brinson, *A Hydrogeomorphic Classification for Wetlands* (Wetlands Research Program Technical Report WRP-DE-4, U.S. Army Corps of Engineers, Aug. 1993).

Lewis M. Cowardin, Virginia Carter, Francis C. Golet, & Edward T. LaRoe, *Classification of Wetlands and Deepwater Habitats of the United States* (U.S. Fish & Wildlife Service, 1979).

F. Richard Hauer & Gary Anthony Lamberti, eds., *Methods in Stream Ecology* (2d ed.) (Academic Press, 2007).

M.J. Mac, P.A. Opler, C.E. Puckett Haeker, & P.D. Doran, *Status and Trends of the Nation's Biological Resources* (U.S. Geological Survey, 1998).

William J. Mitsch & James G. Gosselink, *Wetlands* (4th ed.) (John Wiley & Sons, Inc., 2007).

William J. Mitsch, James G. Gosselink, Christopher J. Anderson, & Li Zhang, *Wetland Ecosystems* (John Wiley & Sons, Inc., 2009).

Terms of Environment: Glossary, Abbreviations and Acronyms (U.S. EPA, 2006).

CASE APPENDIX

COMPENDIUM OF POST-*RAPANOS* FEDERAL COURT DECISIONS AND U.S. EPA ADMINISTRATIVE RULINGS[†]

This compendium surveys the jurisprudence of Clean Water Act (CWA) jurisdiction as it has developed in the lower federal courts following the U.S. Supreme Court’s sharply divided ruling in *Rapanos v. United States*.[‡] From *Rapanos* emerged two very different legal tests for determining whether a water is subject to federal jurisdiction under the CWA: the “significant nexus” test from Justice Anthony Kennedy’s concurring opinion, and the “relatively permanent water + continuous surface connection” test from Justice Antonin Scalia’s plurality opinion.

Since *Rapanos* was handed down in June 2006, the ruling has played a significant role in written opinions of the lower federal courts and U.S. EPA’s Environmental Appeals Board. To date, *Rapanos* has been interpreted, applied, discussed, or cited in over ninety different cases, arising out of 35 states and Puerto Rico. The cases that examine *Rapanos* in detail typically address one or both of the following questions: (1) which opinion from the Supreme Court’s splintered *Rapanos* decision now provides the controlling legal standard? and (2) how is Justice Kennedy’s “significant nexus” test to be applied—and what types of evidence can be used to support a finding that a water is subject to federal jurisdiction under the CWA? As the case summaries in this compendium make clear, *Rapanos* left many unanswered questions in its wake—questions with which the lower courts continue to grapple.

The U.S. Courts of Appeals that have addressed the issue have uniformly agreed that if a water satisfies the Kennedy significant nexus test, that water is jurisdictional. Beyond this, however, the views of the appellate courts diverge. Three circuits (the First, Third, and Eighth) have held that CWA jurisdiction exists if a water meets *either* the Kennedy significant nexus test *or* the Scalia plurality test. Three circuits (the Fourth, Seventh, and Ninth) have approved the use of the Kennedy significant nexus test to find jurisdiction—but not necessarily foreclosed the use of the Scalia plurality test in future cases. One circuit (the Eleventh) has held that the Kennedy significant nexus test alone provides the rule of *Rapanos*. Finally, two circuits (the Fifth and Sixth) have each considered a post-

[†] NOTE: Some of the material contained here originally appeared in Appendix Two to the first edition of the Clean Water Act Jurisdictional Handbook, published by the Environmental Law Institute in July 2007. This updated version covers relevant lower federal court decisions (and identifies U.S. Environmental Protection Agency administrative rulings) issued through April 2012. Decisions citing to the Supreme Court’s *Rapanos* ruling for a proposition unrelated to Clean Water Act jurisdiction are omitted.

[‡] 547 U.S. 715 (2006). The *Rapanos* decision is discussed in Chapter Two and Chapter Three of this handbook.

Rapanos case presenting questions of CWA jurisdiction but declined to decide on a controlling legal standard. The remaining circuits have not addressed the issue. No circuit has ruled that the Scalia plurality test alone is the rule of *Rapanos*.

U.S. COURTS OF APPEALS (BY CIRCUIT)

The decision of a U.S. Court of Appeals on a legal issue is binding in all future federal court cases in states located within that judicial circuit, unless and until the Supreme Court rules on the issue. Court of appeals decisions in one circuit do *not* bind courts in other circuits, although judges may choose to rely on decisions from their sister circuits as “persuasive” authority.

U.S. Court of Appeals for the First Circuit Maine, Massachusetts, New Hampshire, Puerto Rico, & Rhode Island

United States v. Johnson, 467 F.3d 56 (1st Cir. 2006), *vacating* 437 F.3d 157 (1st Cir. 2006), and *cert. denied*, *Johnson v. United States*, 552 U.S. 948 (2007). On remand, jury verdict issued in favor of government, Apr. 25, 2011. *See also* 77 Fed. Reg. 13633 (Mar. 7, 2012) (notice of lodging proposed consent decree).

At issue: three wetland parcels, each with surface-water connections (e.g., via streams, ditches, ponds, bogs, a reservoir, and other wetlands) to the Weweantic River

In a civil enforcement action brought by the government against cranberry farmers for dredging and filling wetlands in violation of the CWA, the First Circuit held that, post-*Rapanos*, the government may seek to demonstrate federal jurisdiction over wetlands adjacent to non-navigable tributaries of traditional navigable waters under *either* the Kennedy significant nexus test *or* the Scalia plurality test. On remand, the case was tried before a jury, which found the waters at issue to be jurisdictional under both tests.

* * *

United States v. Agosto-Vega, 617 F.3d 541 (1st Cir. 2010).

At issue: Jiménez Creek, a tributary of the Espíritu Santo River, a major river in northeastern Puerto Rico that empties into the Atlantic Ocean

A developer was convicted by a jury of conspiring to violate the CWA, as well as aiding and abetting in the unlawful discharge of raw sewage from a point source to waters of the United States in violation of the CWA. A government investigation showed that “thousands of gallons of raw sewage” had been discharged into Jiménez Creek, evidently to address a sewage backup and overflow problem adversely affecting homeowners in the developer’s new housing development. On appeal, the developer

argued that the evidence at trial was insufficient to prove that Jiménez Creek, into which the pollutants were dumped, is a water of the United States.

Following the First Circuit's *Johnson* precedent, the court first held that the government could properly assert jurisdiction under *either* the Kennedy significant nexus test *or* the Scalia plurality test. The court then recounted the relevant facts established by the government: the housing development sits on the northern slopes of a mountain range in an area of "copious precipitation" near a tropical rain forest in which Jiménez Creek originates, roughly two miles away; the development abuts the creek, which flows into the Espiritu Santo River, across the street from the development; the creek (prior to the dumping of sewage by the developer) provided drinking water and was suitable for recreation; and the river is subject to the ebb and flow of the tide and physically navigable by small boats from its mouth at the Atlantic Ocean to the development. On these facts, the court readily concluded that a jury could find beyond a reasonable doubt that the creek was jurisdictional under either the Kennedy significant nexus test or the Scalia plurality test.

The court did, however, vacate the developer's conviction on unrelated grounds and remand for new trial.

* * *

U.S. Court of Appeals for the Second Circuit Connecticut, New York, & Vermont

Cordiano v. Metacon Gun Club, Inc., 575 F.3d 199 (2d Cir. 2009), *aff'g on other grounds Simsbury-Avon Preservation Soc., LLC v. Metacon Gun Club, Inc.*, 472 F. Supp. 2d 219 (D. Conn. 2007). *See also Simsbury-Avon Preservation Society, LLC v. Metacon Gun Club, Inc.*, 2010 WL 1286812 (D. Conn. Mar. 29, 2010) (denying defendant's motion for attorney and expert witness fees); *Simsbury-Avon Preservation Soc., LLC v. Metacon Gun Club, Inc.*, 2006 WL 2223946 (D. Conn. Aug. 2, 2006) (denying defendant's motion to dismiss and granting defendant's motion for summary judgment on RCRA claims), *reconsideration denied, Simsbury-Avon Preservation Soc., LLC v. Metacon Gun Club, Inc.*, 2006 WL 2474978 (D. Conn. Aug. 25, 2006); *Simsbury-Avon Preservation Soc., LLC v. Metacon Gun Club, Inc.*, 2005 WL 1413183 (D. Conn. June 14, 2005) (granting in part and denying in part defendant's motion to dismiss).

At issue: wetlands/vernal pool separated by an earthen berm from a private shooting range; wetlands/pool connect with Horseshoe Cove, which flows into the Farmington River

Homeowners brought a citizen suit under the CWA against a nearby gun club for discharging lead shot into wetlands and a vernal pool adjoining the club's private outdoor shooting range, without a permit and in violation of the CWA. (The homeowners also brought claims under the Resource Conservation and Recovery Act, not discussed here). The district court granted the club's motion for summary judgment,

finding that while CWA jurisdiction could legally be established under either *Rapanos* test, homeowners had proven it under neither.

On appeal, the Second Circuit affirmed the decision of the district court, but on alternative grounds. The Second Circuit determined that it “need not pass on the issue whether [the] wetlands [at issue] are jurisdictional under *Rapanos*.” This is because, even assuming the presence of jurisdictional wetlands, the homeowners failed to raise a genuine issue of material fact as to whether the gun club discharged lead into the wetlands from a point source (*i.e.*, a “discernable, confined and discrete conveyance”). Specifically, the court ruled that there was insufficient evidence to raise a triable issue of fact as to whether either the berm (into which lead shot was fired) or the firing line of the shooting range itself was a point source. The court clarified, however, that it was *not* holding that a berm can *never* constitute a point source.

* * *

U.S. Court of Appeals for the Third Circuit Delaware, New Jersey, Pennsylvania, & U.S. Virgin Islands

United States v. Donovan, 661 F.3d 174 (3d Cir. 2011), *aff'g United States v. Donovan*, 2010 WL 3614647 (D. Del. Sept. 10, 2010), *adopting United States v. Donovan*, 2010 WL 3000058 (D. Del. July 23, 2010) (magistrate report & recommendation). *See also United States v. Donovan*, 466 F. Supp. 2d 590 (D. Del. 2006) (denying defendant’s motion for summary judgment on takings grounds and rejecting jurisdictional arguments); *United States v. Donovan*, 466 F. Supp. 2d 595 (D. Del. 2006) (granting in part and denying in part government’s motion for summary judgment on restoration and civil penalty).

*At issue: **wetlands and stream channels** located on a four-acre parcel situated within the watershed of the Sawmill Branch, which flows into Smyrna River, a navigable-in-fact water that drains to the Delaware Estuary and then the Delaware Bay*

The government brought a civil enforcement action against a property owner for filling wetlands on his four-acre parcel of land during the late 1980s and early 1990s, in violation of the CWA. His property is located in the Sawmill Branch watershed. Sawmill Branch flows into the Smyrna River, which flows into the Delaware Estuary and then the Delaware Bay. Sawmill Branch becomes tidal roughly 2.5 miles from defendant’s property. He had ignored repeated warnings and a cease-and-desist notice from the Corps. In 2006, the district court granted summary judgment on behalf of the government and entered judgment, imposing a \$250,000 fine and ordering defendant to remove 0.771 acres of fill from his land. On appeal, the Third Circuit remanded the case, without opinion, for further development of the record on the issue of CWA jurisdiction in light of the *Rapanos* decision. On remand, the district court adopted the report and recommendation of the magistrate judge, granting the government’s motion for summary judgment and denying defendant’s motion for judgment on the pleadings. Defendant again appealed.

The Third Circuit first analyzed the *Rapanos* decision and subsequent lower-court opinions interpreting the case to determine which jurisdictional test or tests apply. The court concluded that CWA jurisdiction can properly be demonstrated under *either* the Scalia plurality test *or* the Kennedy significant nexus test.

The court determined that the government had satisfied its initial burden on summary judgment here under both *Rapanos* jurisdictional tests. The government had submitted two expert reports: one from a wetland scientist and the other from scientists at the Stroud Water Research Center. The latter was prepared by experts with expertise in chemistry, geo-chemistry, and bio-chemistry; aquatic micro-invertebrates and fish; and geographic information, field logistics, and hydrology. Both expert reports were based on extensive analysis and testing of defendant's property, which included undertaking activities to map stream channels and to analyze the wetlands' hydrologic connections to downstream waters, the wetlands' potential for filtering pollutants, and the wetlands' role in the broader aquatic ecosystem. Defendant submitted no expert evidence in support of his motion; he relied on his own affidavit to characterize the pattern of water flow on the property.

First, with respect to the Scalia plurality test, the court concluded that the government had demonstrated that the channels on defendant's land—which continue through the Sawmill Branch and on to the Smyrna River, both navigable-in-fact waters—were relatively permanent. The first expert report cited to soil saturation and surface ponding in wetlands during the summer months, morphological vegetation conditions such as buttressing of tree trunks and formation of hummocks, the presence and density of plant species adapted to saturated soil, and the presence of bed, bank, ordinary watermark and flowing water in the tributary channels. The report further discussed downstream characteristics, such as multiple large culverts, that are indicators of perennial flow. The second report similarly concluded that the channels were permanent, based on the existence of organisms in the wetlands and channels with two-year life cycles, as well as on the presence of certain fish species on the property.

Both reports also supported the conclusion that the wetlands have a surface water connection with traditional navigable waters, as required by the Scalia plurality test. The government presented evidence that its wetland scientist had walked along the streams on the property, following them to their confluence with the main stem of the Sawmill Branch; he mapped and documented an unbroken surface water connection from the Smyrna River to the property, through a network of tributary stream channels. He supported this finding with 58 photographs accompanied by explanatory captions. The water center experts conducted a hydrologic connectivity test, using a tracing chemical, further suggesting an unbroken surface water connection from defendant's property to downstream navigable waters. Test results showed that chemical levels 2,700 meters downstream were non-existent prior to the test, spiked, and then dropped off precipitously, reflecting a water flow downstream from defendant's property.

Second, the court determined that the government had met its initial burden in demonstrating jurisdiction under the Kennedy significant nexus test. Expert evidence showed substantial connectivity between the waters on defendant's land and

downstream traditional navigable waters. For example, the research center experts had added dissolved bromide and dye to the wetlands intersecting defendant's property and measured levels downstream. This showed that the wetlands contribute flow to the Sawmill Branch. Their report also concluded that the headwater wetlands of the Sawmill Branch, including defendant's, help to remove nitrogen and protect the Delaware Estuary from excessive nutrient loading. They demonstrated through studies that his wetlands sequester pollutants (such as zinc and polycyclic aromatic hydrocarbons (PAHs)) from downstream waters. They further concluded that the wetland complex plays an important role in the aquatic food web by serving as habitat and providing nutrients for fish, as well as for macroinvertebrates that support aquatic life in traditional navigable waters, and by supplying energy and nutrients to aquatic life downstream. The wetland scientist's report found that the gradient of the tributary stream channels on defendant's parcel is low, meaning that the wetlands retain water for relatively long periods and perform functions like reducing sediment loads and pollutants from storm water, and retaining and transforming nutrients for downstream navigable waters. This report added that wetlands on and adjacent to the property discharge groundwater, helping to maintain stream flow and preserve fish and wildlife habitat.

Defendant opposed the government's motion only with a short declaration characterizing water-flow patterns on his property. He emphasized that the amount is completely dependent on rainfall, and that in rain-free periods, the channels are dry. The court declined to determine whether defendant had raised a genuine issue of material fact with respect to the Scalia plurality test because he "unquestionably" had failed to do so with respect to the Kennedy significant nexus test. Even drawing all reasonable inferences in defendant's favor, the court concluded he had failed to show the presence of a genuine issue for trial:

The unrebutted evidence in the record shows that [defendant's] wetlands contribute water flow to the Sawmill Branch—which becomes tidal approximately 2.5 miles from Donovan's property—and help sequester pollutants Specifically, the record evidence indicates that the intact wetland flow path on [his] property removes approximately 540 grams of zinc and 12 grams of PAH compounds over its 72-meter length, while a non-wetland flow path on the south of [his] property removes approximately 49 grams of zinc and 0.8 grams of PAHs over its 65-meter length. Absent [his] wetlands, these pollutants would travel downstream, raising contaminant levels for up to 150,000,000 gallons of water past EPA drinking water guidelines for decades or centuries to come. The record also shows that [these] wetlands are important sources of energy and carbon for downstream habitats. In addition, [the government's experts] found fish on [the] property that were also found in downstream waters of Sawmill Branch Creek. Therefore, the record evidence shows that [his] wetlands *alone* significantly affect the chemical, physical, and biological integrity of "waters of the United States," without even considering the effect these wetlands have on such waters when aggregated with similarly situated lands in the region. (Emphasis in original.)

* * *

U.S. Court of Appeals for the Fourth Circuit
Maryland, North Carolina, South Carolina,
Virginia, & West Virginia

Precon Development Corp., Inc. v. U.S. Army Corps of Engineers, 633 F.3d 278 (4th Cir. 2011), *reversing and remanding* 658 F. Supp. 2d 752 (E.D. Va. 2009).

At issue: 4.8 acres of Site Wetlands (part of a large wetland complex) that are separated by a berm from a 2,500-foot, seasonally-flowing ditch, which, 900 feet downstream of the Site Wetlands, connects to the perennial Saint Brides Ditch, which flows for about two-and-a-half to three miles before joining another tributary; three to four miles further downstream, the merged tributaries empty to the Northwest River

Seeking to develop ten residential building lots as part of a 658-acre project near Chesapeake, Virginia, a developer requested a § 404 permit from the Corps to impact wetlands at the site. The development would potentially impact 4.8 acres of wetlands (the Site Wetlands), which form a small part of a much larger wetland complex. A 2,500-foot ditch runs adjacent to the Site Wetlands but is separated from them by a continuous berm. The ditch has a seasonal flow, due primarily to rainfall. Nine hundred feet from the Site Wetlands, the ditch intersects with the perennially flowing Saint Brides Ditch. Water from the wetlands on the property moves through at least three breaks in the continuing berm—as well as through subsurface flow—into the Saint Brides Ditch. The Saint Brides Ditch meets another perennial tributary approximately two-and-a-half to three miles downstream, before the entire merged tributary drains into the Northwest River, a traditionally navigable water, approximately three to four miles further downstream. The Site Wetlands lie roughly seven miles from the Northwest River.

At the developer's request, the Corps made a jurisdictional determination (JD) and concluded that it had jurisdiction over the Site Wetlands. The Corps subsequently denied the developer's permit request. The developer exhausted all available administrative options for relief, which included a reconfirmation by the Corps of its JD in reliance on its internal guidance document issued after *Rapanos*. The developer then sued to obtain: (1) a declaratory judgment that the wetlands at the site are not subject to federal jurisdiction under the CWA; or, in the alternative, (2) an order setting aside the Corps' permit denial and directing the Corps to issue a permit to allow development to proceed. The district court, on cross-motions for summary judgment, adopted the report and recommendations of the magistrate judge and dismissed the case. The developer appealed.

The Fourth Circuit determined that the Corps' administrative record was inadequate to support jurisdiction. It therefore vacated the district court's grant of summary judgment and remanded the case to the lower court, with instructions to remand it to the Corps to reconsider its jurisdiction. In reaching this decision, the Fourth Circuit, noting the parties' agreement that the Kennedy significant nexus test governed, declined to consider whether the Scalia plurality test might provide an alternative ground for CWA

jurisdiction. The court did, however, indicate in a footnote that the applicability of the Scalia plurality test on these facts would be “more questionable” given the presence of the berm between the Site Wetlands and their adjacent tributary.

The court went on to note that it would not afford *Chevron* deference to the Corps’ interpretation of the phrase “significant nexus” because the Corps had yet to adopt, through notice-and-comment rulemaking, an interpretation of navigable waters that incorporates the concept of significant nexus. At most, the court would afford the Corps’ interpretation *Skidmore* deference (*i.e.*, deference to the extent that the agency interpretation “has the power to persuade”).

After addressing these preliminary issues, the court turned to the developer’s arguments. The developer attacked the Corps’ JD in two principal respects. First, the developer disputed the Corps’ decision to aggregate 448 acres of surrounding wetlands as “similarly situated” for purposes of its significant nexus analysis. The developer particularly objected to the equal treatment of “abutting” wetlands and other adjacent wetlands. The developer also objected to the Corps’ inclusion of two ditches together as part of the relevant reach. Second, the developer argued that, even if the Corps’ aggregation determination was proper, the evidence was insufficient to establish a significant nexus between the Site Wetlands and the Northwest River.

The court rejected the developer’s first argument. Under its post-*Rapanos* guidance, the Corps identified the relevant reach to consist of the 2,500-foot ditch and the Saint Brides Ditch to the point where the latter converges with Pleasant Grove Swamp. The Corps had explained that these ditches were historically part of the same naturally defined drainage feature before human-made ditches altered the area. The Corps then identified 166 acres of wetlands located on the property, together with 282 acres located off-property, as adjacent to the relevant reach. Moreover, the court saw no indication that Kennedy intended to differentiate between abutting and other adjacent wetlands in *Rapanos*. The berm inhibits neither wildlife movement nor wetland functions; indeed, the berm provides the benefit of allowing for a longer period of floodwater retention than would otherwise be available.

Nor did the court object to the Corps’ determination to include the two ditches together as part of the relevant reach. The Corps had stated its reasons; additionally, a contrary determination would make it easier for a landowner to avoid jurisdiction by digging “well-placed drainage ditches on either side of the wetlands he wished to fill.” A closer question, the court said, was whether the Corps could treat the adjacent wetlands some three miles downstream as “similarly situated.” Although the court chided the Corps for not assembling more concrete evidence in support of aggregating “such a broad swath” of wetlands, it still upheld the determination on the basis that the Site Wetlands function as part of the entire 448 acres.

The court did, however, accept the developer’s second argument. The court concluded that while “the significant nexus test does not require laboratory tests or any particular quantitative measurements in order to establish significance,” Justice Kennedy “clearly intended for some evidence of both a nexus and its significance to be presented.” The

question was then whether the administrative record contained “enough physical evidence—quantitative or qualitative” to uphold the JD. The court rejected the Corps’ position that documentation of tributary flow sufficed here. As an initial matter, the record reflected measures of water storage capacity and resultant potential flow rates of the two ditches at issue, but not measures of actual flow. Additionally, the court concluded, even measures of adjacent tributary flow would not necessarily have established a significant nexus between the wetlands and downstream waters. This is because the Kennedy significant nexus test emphasizes the comparative relationship between the relevant wetlands, their adjacent tributary, and downstream, traditional navigable waters. The court found it important that the navigable water in question lay roughly seven miles away from the wetlands.

The court acknowledged that the Corps had made many other physical observations about the wetlands and their adjacent tributaries, including the dynamic storage capacity, channel slope, water velocities, and sediment storage capacities of the Saint Brides Ditch; the storage capacity, water velocity, and estimated sediment and organic material trapping capabilities of the 2,500-foot ditch; and the foot/acre water storage capacity, annual amount of precipitation received, and estimated amount of nitrogen stored for the 448 acres of wetlands. But the court dismissed this evidence in a short footnote, concluding that, while the evidence established a nexus between the wetlands and the Northwest River, it failed to establish the significance of that nexus. The court’s concern seemed to be that the Corps had not related this evidence to “information about the river’s condition” (*i.e.*, although the wetlands and their tributaries trap sediment and nitrogen and perform flood control functions, there was no evidence as to whether the Northwest River suffers from a high level of nitrogen or sedimentation, or is prone to flooding). The Corps must document why wetlands significantly, rather than insubstantially, affect the integrity of navigable waters, and that documentation “should include some comparative information.”

* * *

U.S. Court of Appeals for the Fifth Circuit
Louisiana, Mississippi, & Texas

United States v. Lucas, 516 F.3d 316 (5th Cir. 2008), *cert. denied*, 555 U.S. 822 (2008).

*At issue: **Big Hill Acres wetlands**, which have surface-water connections (via surrounding bayous, creeks, and rivers) to the Gulf of Mexico*

Following the issuance of written warnings and cease-and-desist orders, the government prosecuted corporate and individual developers for various violations of the CWA. The developers sold house lots and designed and certified septic systems on wetlands, but represented to purchasers that the lots were dry. The septic systems failed, resulting in waste discharges. A jury convicted the developers on all counts, and the trial court sentenced the individual developers to prison terms. On appeal, the developers challenged the court’s instructions to the jury on the issue of whether there was CWA

jurisdiction. They also challenged the sufficiency of the evidence supporting the jury finding that the CWA covered the wetlands at issue.

The Fifth Circuit affirmed the convictions. The court found no error in the trial court's instructions, which contained elements of *both* the Scalia plurality opinion and the Kennedy concurring opinion. The jury was required to find, and did find, "that the wetlands were 'adjacent to a navigable body of open water,' meaning 'there is a *significant nexus* between the wetlands in question and a *navigable-in-fact* waterway.'"

The Fifth Circuit then went on to find that the evidence was sufficient to support jurisdiction under *any* of the three approaches from *Rapanos*—the Scalia plurality test, the Kennedy significant nexus test, and the dissent. Evidence supporting a finding of jurisdiction under the Scalia plurality test included expert testimony that there is "open flowing water" north of the site and that there are "boat points" at the confluence of two tributaries, each of which has "strong flow" and "high velocity;" photographs of people kayaking in tributaries connected to the wetlands on the property, as well as in some of the wetlands themselves; and maps and aerial photographs that, buttressed by expert testimony, showed the connections and patterns among the waters leading from the site to traditional navigable waters. And the government presented evidence that the wetlands at issue control flooding and prevent pollution in downstream navigable waters, facts that the Fifth Circuit deemed to support jurisdiction under both the Kennedy concurring opinion and the dissent.

* * *

U.S. Court of Appeals for the Sixth Circuit Kentucky, Michigan, Ohio, & Tennessee

United States v. Cundiff, 555 F.3d 200 (6th Cir. 2009), *aff'g* 480 F. Supp. 2d 940 (W.D. Ky. 2007), *cert. denied*, 130 S.Ct. 74 (2009). *See also* *United States v. Cundiff*, 2011 WL 855325 (W.D. Ky. Mar. 8, 2011) (denying defendant's motion to excuse payment of civil penalty); *United States v. Cundiff*, 2010 WL 5345436 (W.D. Ky. Dec. 8, 2010) (granting and granting in part various motions by the government); *United States v. Cundiff*, 2009 WL 4758734 (W.D. Ky. Dec. 8, 2009) (granting and granting in part various motions by the government); *United States v. Cundiff*, 2007 WL 1455968 (W.D. Ky. May 16, 2007) (adopting amended modified restoration plan tendered by the government); and *United States v. Cundiff*, 2007 WL 1040409 (W.D. Ky. Mar. 29, 2007) (denying, granting, and granting in part various motions by the government).

At issue: wetlands located on adjacent tracts of land next to Pond Creek and Caney Creek, which are mostly non-navigable tributaries of the Green River and the Ohio River

The government brought a civil enforcement action against landowners for draining and filling wetlands on two adjacent tracts of land, in violation of the CWA and despite repeated warnings. The wetlands, which cover 188 total acres, are adjacent to Pond and

Caney Creeks, mostly non-navigable tributaries of the Green and Ohio Rivers, traditional navigable waters. The wetlands contain drainage from past mining activities.

The Sixth Circuit determined that the government had demonstrated federal jurisdiction under both the Kennedy significant nexus test and the Scalia plurality test. The court therefore declined to issue a definitive holding as to which *Rapanos* opinion should govern. Beginning with the Kennedy significant nexus test, the court found a significant nexus based primarily on testimony from several experts, including a wetlands scientist and a state environmental control supervisor with the Division of Water: the wetlands at issue serve several important ecological functions, including both temporary and long-term water storage, the filtering and trapping of acid mine drainage and sediment, and habitat support for plant and wildlife species endemic to wetland ecosystems; the landowners' activities had diminished the capacity of the wetlands to store water, affecting frequency and extent of downstream flooding, and in turn impacting navigation, crop production in bottomlands, downstream bank erosion, and sedimentation; and the landowners' activities had channelized Pond Creek, causing acid mine drainage to bypass the wetlands and move quickly into the traditional navigable waters, resulting in impacts to navigation due to sediment accumulation and to aquatic food webs not adapted to thrive in acid waters and sediment-choked environments. The court noted that the record showed that if one dropped a poison into the wetlands at issue, it would find its way to the two creeks and into the Green River. This "indicat[ed] a significant chemical, physical, or biological connection between the wetlands and the nearby navigable-in-fact waters." The Sixth Circuit rejected the landowners' argument that "laboratory analysis" of soil or water samples, or other tests, represent the "sole method" by which a significant nexus can be proved—although a district court could find such evidence persuasive.

The Sixth Circuit determined that the Scalia plurality test was satisfied by the following evidence: expert testimony and aerial photos demonstrating that the creeks in question are relatively permanent bodies of water that connect to the Green River; maps, historical aerial photos, and an aerial videotape showing that Pond Creek and Caney Creek are open water bodies with significant quantities of flowing water, and that they have a continuous surface connection with the wetlands; and expert testimony that there is no clear demarcation between waters and wetlands at the site, and that there are continuous surface connections during significant storm events, "bank full" periods, and ordinary high flows, as well as during flood stage. The court rejected landowners' argument that the surface levels of the wetland and the covered waters must be identical. Finally, the court noted that one of the landowners "personally went a long way towards creating a continuous surface connection when he dug or excavated ditches to enhance the acid mine drainage into the creeks and away from his wetlands." For purposes of assessing CWA jurisdiction, the court said, "it does not make a difference whether the channel by which water flows from a wetland to a navigable-in-fact waterway or its tributary was manmade or formed naturally."

* * *

U.S. Court of Appeals for the Seventh Circuit
Illinois, Indiana, & Wisconsin

United States v. Gerke Excavating, Inc., 464 F.3d 723 (7th Cir. 2006) (per curiam), *cert. denied*, 552 U.S. 810 (2007), *case settled*, W.D. Wisc. No. 03-C-74-C (May 15, 2008) (proposed consent decree). *See also Gerke Excavating, Inc. v. United States*, 548 U.S. 901 (June 26, 2006) (order), *granting cert. and vacating United States v. Gerke Excavating, Inc.*, 412 F.3d 804 (7th Cir. 2005).

*At issue: **tract of wetlands** drained by a ditch that runs into a non-navigable creek, which runs into the non-navigable Lemonweir River, which runs into the Wisconsin River*

The government brought a civil enforcement action against a contractor for filling wetlands in violation of the CWA. The wetlands at issue are drained by non-navigable tributaries of downstream navigable waters. Following a short analysis of the *Rapanos* decision, the Seventh Circuit concluded that the Kennedy significant nexus test “must govern the further stages of this litigation.” Notwithstanding the Seventh Circuit’s endorsement of the Kennedy standard, the wording of the court’s opinion does not appear to foreclose the application of the Scalia plurality test in future cases.

The court remanded the case to the district court for further fact finding; the case ultimately settled.

* * *

U.S. Court of Appeals for the Eighth Circuit
Arkansas, Iowa, Minnesota, Missouri, Nebraska,
North Dakota, & South Dakota

United States v. Bailey, 571 F.3d 791 (8th Cir. 2009), *aff’g* 516 F. Supp. 2d 998 (D. Minn. 2007). *See also United States v. Bailey*, 556 F. Supp. 2d 977 (D. Minn. 2008) (issuing final injunction and denying landowner’s motion to stay entry of judgment).

*At issue: **approximately 12 acres of wetlands**, comprising most of a 13-acre site, that are adjacent to Lake of the Woods, a navigable-in-fact water*

A landowner built a road through a wetland on his Minnesota property without a permit, in violation of the CWA, and despite warnings from government officials that road construction was not properly permitted and that he should stop construction. He planned to plat the site for residential development and sell lakeside lots. When he refused to comply with a restoration order issued by the Corps, the government brought an enforcement action to compel him to restore the wetlands to their pre-violation condition. On cross-motions for summary judgment, the district court granted the government’s motion in pertinent part and denied the landowner’s motion.

The Eighth Circuit affirmed the district court’s decision. With respect to which *Rapanos* standard provides the controlling jurisdictional test, the court found the First Circuit’s reasoning in *Johnson* to be persuasive. Thus, there is federal jurisdiction under the CWA when *either* the Kennedy significant nexus test *or* the Scalia plurality test is satisfied.

Here, the court concluded that the Kennedy significant nexus test was satisfied because the government had presented evidence that the wetlands at issue are adjacent to Lake of the Woods, which is navigable-in-fact. Justice Kennedy (essentially re-affirming the rule of *United States v. Riverside Bayview Homes, Inc.*) had made clear in his *Rapanos* opinion that federal jurisdiction over wetlands adjacent to navigable-in-fact waters may be conclusively inferred. In other words, the Sixth Circuit found that a significant nexus exists as a matter of law.

The court rejected the landowner’s other arguments. These included the argument that proof of adjacency alone was insufficient to show jurisdiction, absent evidence that pollutants from the road had reached the lake. The court dismissed this argument in a footnote. The landowner also argued that there was a genuine issue of material fact as to whether the wetlands are adjacent to the lake. Specifically, he argued that a 15-foot corridor of allegedly dry land standing between the lake and the wetlands upon which the road had been built results in a barrier of non-wetland around the shore. The Eighth Circuit concluded that the landowner had failed to counter with competent evidence the government’s expert evidence that the wetlands do, in fact, extend to the edge of the water. That is, the Corps had presented sufficient evidence to allow a fact finder to conclude that the 15-foot corridor closest to the lake’s shoreline consists of wetland hydrology.

* * *

U.S. Court of Appeals for the Ninth Circuit
Alaska, Arizona, California, Guam, Idaho, Montana,
N. Marianas, Nevada, Oregon, Washington, & Hawaii

San Francisco Baykeeper v. Cargill Salt Division, 481 F.3d 700 (9th Cir. 2007).

At issue: runoff pond (not a wetland) located in waste containment facility and separated by an earthen levee from Mowry Slough, a navigable tributary of San Francisco Bay

In a citizen suit brought by environmental organizations against a salt-making company for discharging pollutants in violation of the CWA, the Ninth Circuit held that, under current regulations and Supreme Court precedent, “mere adjacency” of a water body to traditional navigable waters may be used to demonstrate CWA coverage only when the water body in question is a wetland. Here, the water body was a pond separated by an earthen levee from the nearby Mowry Slough, a traditional navigable water and tributary of San Francisco Bay. The Ninth Circuit also rejected environmental organizations’ argument that the Kennedy significant nexus test applies to waters that

are not wetlands and went on to note in dictum that, even if the test applied, the environmental organizations had not satisfied it.

* * *

United States v. Moses, 496 F.3d 984 (9th Cir. 2007), *aff'g* 2006 WL 1459836 (D. Idaho May 25, 2006), *cert. denied*, *Moses v. United States*, 554 U.S. 918 (2008), and *post-conviction relief dismissed by United States v. Moses*, 642 F. Supp. 2d 1216 (D. Idaho 2009).

At issue: Teton Creek, a seasonally intermittent tributary of the Teton River and Snake River

The government prosecuted an Idaho developer for multiple violations of the CWA following repeated warnings, a notice of violation, and a cease-and-desist order. For more than twenty years, beginning in the early 1980s, the developer caused “substantial” work to be performed on the bed of Teton Creek, a seasonally intermittent stream that flows into the Teton River and ultimately the Snake River. Where the stream flows through his subdivision, the developer moved “[t]housands of cubic yards of gravel and other materials,” which “deepened, widened, and greatly disturbed” the channel and left the stream unstable. The developer’s rerouting and reshaping of the creek, including through the use of heavy equipment, was found to have caused serious adverse upstream and downstream effects. A jury convicted him, and the trial court sentenced him to 18 months of incarceration. The developer appealed.

On appeal, the developer argued that the portion of Teton Creek he had manipulated was not a water of the United States because it flows only intermittently, during the spring run-off, which lasts approximately two months per year. The evidence showed that, when the stream flows, its “volume and power” are “high, even torrential.”

The Ninth Circuit rejected the developer’s argument. First, the court determined that the intermittency resulted from an upstream agricultural diversion, and that the stream clearly was jurisdictional prior to the man-made diversion. The court held that the diversion could not operate to change the stream “from a water of the United States into something else.” Nor did it make a significant difference for purposes of a CWA discharge that pollutants were deposited while the relevant section of Teton Creek was dry.

The court ruled that a seasonally intermittent stream that ultimately empties into a river that is a water of the United States can, itself, be a water of the United States. Though the court found the Kennedy concurring opinion to provide “the controlling rule of law,” the court interpreted the various *Rapanos* opinions to reflect unanimous agreement among the justices that seasonally intermittent streams can be waters of the United States.

Separately, it should be noted that, in a 2009 opinion rejecting further collateral attack by the developer on his sentence, the trial court observed that, had the Ninth Circuit chosen to apply the Kennedy significant nexus test, there is “no doubt” that the test would have been satisfied. This is due to findings that: “the volume and power of the

flow are high, even torrential;” Teton Creek is perennial above the agricultural diversion and below the developer’s subdivision; the disturbance caused by the developer’s activities reached both upstream and downstream, with substantial impact; and, during periods of runoff, “the Creek rises again and becomes a rampaging torrent” that meets up with downstream waters of the United States.

* * *

Northern California River Watch v. City of Healdsburg, 496 F.3d 993 (9th Cir. 2007), *withdrawing and superseding on denial of reh’g*, 457 F.3d 1023 (9th Cir. 2006), and *cert. denied*, *City of Healdsburg v. Northern California River Watch*, 552 U.S. 1180 (2008).

*At issue: **Basalt Pond**, a rock quarry containing wetlands; the pond is located variously between fifty and several hundred feet from the Russian River; a levee and wetlands separate the pond from the river*

In a citizen suit brought by an environmental group against the City of Healdsburg for dumping sewage from its waste treatment plant into a pond and its surrounding wetlands in violation of the CWA, the Ninth Circuit held that the Kennedy concurring opinion “provides the controlling rule of law for our case.” [NOTE: In ***Northern California River Watch v. Wilcox***, discussed below, the Ninth Circuit later placed a gloss on this holding.] In applying the Kennedy significant nexus test here, the court determined that there was jurisdiction over the wetlands if either the wetlands were adjacent to navigable waters (allowing for a significant nexus to be conclusively inferred), or if the wetlands had a significant nexus with navigable waters. The court found jurisdiction existed under both approaches.

First, the court determined that the pond where the city dumped the wastewater is part of a larger wetland that is adjacent to the Russian River, a water of the United States.

Second, as an alternative basis for jurisdiction, the court relied on the following evidence and findings of the trial court to conclude that the pond has a significant nexus with the Russian River: there is at times an actual surface connection between the water seeping over a man-made levee from the pond into the river; there is an underground hydraulic connection between the two bodies of water, so a change in the water level in one immediately affects the water level in the other; the pond and the river overlie the same aquifer, and the pond drains into the aquifer, with at least one quarter of the pond’s volume annually reaching the river; the pond and its wetlands support substantial bird, mammal, and fish populations, “all as an integral part of and indistinguishable from” the rest of the Russian River ecosystem; many of the bird populations at the pond are familiar along the river (including cormorants, great egrets, mallards, sparrows, and fish-eaters); fish indigenous to the river also live in the pond due to the recurring breaches of the levee; and the pond increases the chloride levels of the river, with the chloride from the pond reaching the river in higher concentrations as a direct result of the city’s discharge of sewage into the pond.

The fact that the pond and its wetlands were created by quarrying—and thus man-made—did not affect the court’s analysis.

* * *

Fairbanks North Star Borough v. U.S. Army Corps of Engineers, 543 F.3d 586 (9th Cir. 2008), *cert. denied*, 129 S.Ct. 2825 (2009).

*At issue: 2.1-acre **wetland parcel** underlain by permafrost*

Alaskan municipality sued the Corps, challenging the agency’s approved jurisdictional determination (JD) that a 2.1-acre tract on which the municipality sought to build recreational facilities consists of wetlands over which the Corps exercises regulatory authority.

The Ninth Circuit affirmed the lower court’s dismissal of the case, holding that the approved JD was not a “final agency action” for purposes of judicial review under the Administrative Procedure Act. While the approved JD marked the consummation of the Corps’ decision-making process on the issue, it did not signify an action “by which rights or obligations have been determined, or from which legal consequences will flow.” As a result, there was no final agency action, and the federal courts lacked jurisdiction over the dispute.

[NOTE: Compare with ***Deerfield Plantation Phase II-B Property Owners Association, Inc. v. U.S. Army Corps of Engineers***, discussed below.]

* * *

Northern California River Watch v. Wilcox, 633 F.3d 766 (9th Cir. 2011), *amending and superseding earlier opinion at 620 F.3d 1075* (9th Cir. 2010).

*At issue: **wetlands** adjacent to the Laguna de Santa Rosa, a tributary of the Russian River*

An environmental organization and an amateur naturalist sued state officials and landowners under the Endangered Species Act (ESA) for an allegedly illegal “take” of an endangered plant. For the U.S. Fish & Wildlife Service (FWS) to have jurisdiction under the ESA, the plant had to be located in an “area under federal jurisdiction.” The plant was located on private property, but in a wetland area subject to CWA jurisdiction.

The Ninth Circuit upheld the district court’s grant of summary judgment on behalf of the defendants. In doing so, it interpreted the ambiguous ESA term “area under federal jurisdiction” as not including all of the waters of the United States under the CWA (here, wetlands adjacent to navigable waters). The court did not, however, foreclose the possibility that FWS might at a later date issue regulations or guidance interpreting ESA jurisdiction to embrace some CWA jurisdictional waters.

This decision is important for the gloss it places on an earlier Ninth Circuit ruling addressing CWA jurisdiction. After originally handing down its *Wilcox* decision in 2010, the Ninth Circuit issued a slightly amended version in 2011 to clarify an aspect of the court's 2007 ruling in ***Northern California River Watch v. City of Healdsburg*** [discussed above]. The *Wilcox* court observed in its amended opinion that, although *Healdsburg* had found that the Kennedy concurring opinion “provides the controlling rule of law for our case,” the Ninth Circuit in *Healdsburg* “did not . . . foreclose the argument that CWA jurisdiction may also be established under the plurality's standard.”

* * *

U.S. Court of Appeals for the Eleventh Circuit Alabama, Florida, & Georgia

United States v. Robison, 505 F.3d 1208 (11th Cir. 2007), *suggestion of reh'g en banc denied*, 521 F.3d 1319, 1320 (Wilson, J., dissenting), *cert. denied*, *United States v. McWane*, 555 U.S. 1045 (2008) and *McWane v. United States*, 555 U.S. 1045 (2008). *See also United States v. Robison*, 521 F. Supp. 2d 1247 (N.D. Ala. 2007) (on remand, directing clerk to reassign case to another judge for trial); *Robison v. United States*, Nos. CV-07-CLS-RRA-8039-S & CR-04-CLS-RRA-0199-S (N.D. Ala. May 4, 2009) (magistrate report & recommendation that Robison's motion to vacate or set aside his conviction or sentence be denied as barred by statute of limitations), *adopted and approved by Robison v. United States*, Nos. CV-07-CLS-RRA-8039-S & CR-04-CLS-RRA-0199-S (N.D. Ala. Aug. 10, 2009). The district court ultimately granted the government's motion to dismiss the indictment as to the defendants who had been successful on appeal: McWane, Inc., Delk, and Devine, No. CR-04-S-0199-S (N.D. Ala. Feb. 12, 2010).

At issue: Avondale Creek, a perennial, non-navigable stream that flows into Village Creek, which flows 28 miles into and through Bayview Lake (created by damming Village Creek) and then becomes Locust Fork, which flows for twenty miles before reaching the Black Warrior River

The government prosecuted a pipe manufacturer and certain of its managers for repeatedly discharging process wastewater into Avondale Creek, in violation of a permit. According to employee testimony, the amount of wastewater discharged was “[e]nough to drown a small village.” Following a jury trial, which occurred prior to the Supreme Court's decision in *Rapanos*, three managers were convicted of CWA violations and sentenced to probation and fines. On appeal by three of the four defendants, the key issue was whether Avondale Creek is subject to CWA jurisdiction.

The Eleventh Circuit first concluded that the Kennedy significant nexus test provides the governing rule for determining CWA jurisdiction. The court then examined the instructions provided by the trial judge to the jury on the issue. The judge had instructed the jury that the term waters of the United States “includes any stream which may eventually flow into a navigable stream or river,” whether continuous or

intermittent. The Eleventh Circuit ruled that this instruction failed to satisfy the Kennedy significant nexus test and was therefore erroneous.

Moreover, the government could not show that the error was harmless. While there was evidence in the record of a continuous, uninterrupted flow between Avondale Creek and the Black Warrior River, a traditional navigable water located far away, defendants had no incentive to challenge this evidence at trial. There was also a lack of evidence as to the chemical, physical, or biological effect that the creek might have on the river, or as to any actual downstream harm. The Eleventh Circuit noted that this case was arguably one in which applying the Scalia plurality test might actually be more likely to result in CWA jurisdiction than applying the Kennedy significant nexus test. And, although the jury instruction was still erroneous for purposes of the Scalia plurality test, under that test the error was arguably harmless, in light of the trial testimony of continuous flow. Thus, the court concluded that the question of which *Rapanos* test applies may have proven to be outcome-determinative. The Eleventh Circuit therefore reversed the convictions, vacated the district court's judgment, and remanded the case.

The government petitioned for rehearing *en banc*, and the Eleventh Circuit denied the petition. Two judges dissented from this denial, concluding that the panel had erred in ruling that the Scalia plurality test is never applicable.

On remand, the district court judge who had initially heard the case directed the clerk to reassign the case to another judge for trial, in part because he was "so perplexed by the way the law applicable to this case has developed that it would be inappropriate for me to try it again." By way of memorandum opinion, the judge stated his disapproval of how the Supreme Court and the Eleventh Circuit had addressed the issue of CWA jurisdiction. He went on to "strongly suggest" that reversal of the convictions meant that Double Jeopardy should attach and the charges be dismissed.

* * *

U.S. Court of Appeals for the District of Columbia Circuit

P&V Enterprises v. U.S. Army Corps of Engineers, 516 F.3d 1021 (D.C. Cir. 2008), *aff'g* 466 F. Supp. 2d 134 (D.D.C. 2006).

At issue: ephemeral tributaries of the Mojave River, located near Barstow, California

The D.C. Circuit upheld the dismissal of a case brought by property developers to challenge a Corps regulation providing for jurisdiction over the category of so-called "(a)(3) waters" (*i.e.*, waters whose use, degradation, or destruction could affect interstate or foreign commerce under agency regulations). The case involved the potential development of an area that included non-navigable tributaries of the Mojave River.

The court ruled that the developers' facial challenge to the 1986 rule came far too late, in light of a six-year statute of limitations. In the absence of some exception (and the court found that the Corps had not "reopened" the issue through its actions so as to

open the issue up for challenge anew), the case had to be dismissed for lack of subject matter jurisdiction. In light of this decision, the D.C. Circuit did not reach the merits of the challenge against the Corps' jurisdiction over (a)(3) waters.

U.S. DISTRICT COURTS (BY STATE)

The decision of a U.S. District Court is generally not binding outside of the case in which it is issued. However, other courts may choose to rely on a district court opinion as “persuasive authority.” Additionally, district court opinions—and related opinions authored by U.S. magistrate judges—can provide practical insights into how the rules of law formulated by the Supreme Court and the federal courts of appeal are applied in specific factual settings.

California

Environmental Protection Information Center v. Pacific Lumber Company, 469 F. Supp. 2d 803 (N.D. Cal. 2007).

*At issue: **intermittent streams, ditches, and other conveyances** draining to Bear Creek, a tributary of the Eel River*

An environmental organization brought a citizen suit against lumber companies for point source discharges into streams in violation of the CWA. At issue were pollutants that allegedly washed from culverts, ditches, erosion gullies, and other channels into headwater streams of the nearby traditional navigable waters of Bear Creek and the Eel River.

On the environmental organization's motion for summary judgment, the court held that it was bound by the Ninth Circuit's *Healdsburg* ruling to apply the Kennedy significant nexus test—and not the Scalia plurality test—to assess CWA jurisdiction. The court further held that the Kennedy significant nexus test requires evidence of a hydrologic connection, which may suffice in some but not all cases to demonstrate jurisdiction, but that this test does *not* require a showing of actual flow of pollutants into traditional navigable waters.

The court went on to find that while the evidence, in the form of GIS maps, supported the existence of a hydrologic connection between the streams (certain of which are intermittent and ephemeral) and traditional navigable waters, the environmental organization had offered no evidence that the streams significantly affect the chemical, physical, and biological integrity of those waters. As a result, the court denied the organization's motion for partial summary judgment on the issue of the lumber companies' liability under the CWA.

[NOTE: Compare with ***Benjamin v. Douglas Rifle Club***, discussed below, holding that significant nexus test is inapplicable to tributaries.]

* * *

Coldani v. Hamm, 2007 WL 2345016 (E.D. Cal. Aug. 16, 2007).

At issue: groundwater beneath and around Lima Ranch, which migrates into the White Slough, which is hydrologically connected to the Sacramento-San Joaquin River Delta system, located less than one mile away from the ranch

In a citizen suit brought by a private landowner against a nearby industrial dairy operation and its owners, the court denied defendants' motion to dismiss the landowner's CWA claims for lack of subject matter jurisdiction. The court's ruling made only a passing reference to *Rapanos* and the Ninth Circuit decisions interpreting it.

Nevertheless, *Coldani* is noteworthy for its ruling with respect to groundwater: the court held that a plaintiff's CWA pleading is sufficient to survive a motion to dismiss where there are allegations that a defendant has polluted groundwater, and that the groundwater is hydrologically connected to surface waters that constitute navigable waters. The court cautioned, however, that a plaintiff would bear the burden of proving that "pollutants from a point source affect surface waters of the United States."

* * *

Sequoia Forestkeeper v. U.S. Forest Service, 2010 WL 5059621 (E.D. Cal. Dec. 3, 2010), *opinion modified on reconsideration by Sequoia Forestkeeper v. U.S. Forest Service* 2011 WL 902120 (E.D. Cal. Mar. 15, 2011). *See also Sequoia Forestkeeper v. U.S. Forest Service*, 2011 WL 2946176 (E.D. Cal. July 21, 2011) (granting environmental organization's motion for fees); *Sequoia Forestkeeper v. U.S. Forest Service*, 2010 WL 2464857 (E.D. Cal. June 12, 2010) (denying environmental organization's motion to compel supplementation of the record).

At issue: Fay Creek, a seasonal, non-navigable stream that flows into the South Fork of the Kern River

An environmental organization sued the U.S. Forest Service (USFS) to obtain judicial review of the re-issuance of a special use permit authorizing a local ranch to use a dam located within the Sequoia National Forest to divert water flowing from Fay Creek for private use. Fay Creek is a tributary of the South Fork of the Kern River. The administrative record included evidence that the creek supports a variety of ecosystems and services, including riparian habitat important to trout and a range of plant life. The dam is 12 feet wide and eight feet high. The parties disputed whether Fay Creek flows intermittently or continuously throughout the year, as well as the amount of water being diverted.

The environmental organization's claims included a National Forest Management Act (NFMA) claim. This claim hinged on the USFS having issued the permit without requiring state certification under CWA § 401 that the diversion would not impact water quality in Fay Creek, in violation of the applicable forest plan.

On cross-motions for summary judgment, the court initially held that the USFS did not violate the NFMA because Fay Creek is not a navigable water. The court determined that the Kennedy significant nexus test provided the governing rule of law for proving CWA jurisdiction, declining to apply the Scalia plurality test in the alternative. Nevertheless, based on a dearth of evidence in the administrative record indicating that the creek joins a navigable water downstream, the court found that Fay Creek is not a navigable water.

On the environmental organization's motion for reconsideration, the court reversed its position and granted summary judgment to the environmental organization on the issue of jurisdiction. Citing the Ninth Circuit's decision in ***Northern California River Watch v. Wilcox*** [discussion above], which was handed down subsequent to district court's earlier ruling, the court determined that it could now properly assess jurisdiction under the Scalia plurality test. (And the USFS now agreed that the court could find jurisdiction under either *Rapanos* test.) The administrative record made clear that Fay Creek is seasonally flowing, and not ephemeral. This flow includes even its lower stretches. It is thus a relatively permanent stream under the Scalia plurality test. The record also demonstrated that the creek is a tributary of the south Kern River, a point admitted by the USFS in its pleadings.

The court vacated the special use permit and remanded the issue of injunctive relief to the USFS.

* * *

San Francisco Baykeeper v. West Bay Sanitary District, 791 F. Supp. 2d 719 (N.D. Cal. 2011). *See also San Francisco Baykeeper v. West Bay Sanitary District*, 2011 WL 97743 (N.D. Cal. Jan. 12, 2011) (deciding various motions).

At issue: nine tributaries of San Francisco Bay: San Francisquito Creek, West Point Slough, Atherton Channel, Los Trancos Creek, Corte Madera Creek, Ravenswood Slough, Bayfront Canal, Redwood Creek, and Bovet Creek

An environmental organization brought a CWA citizen suit against a regional sanitary district, alleging numerous unpermitted discharges through sanitary sewer overflows (SSOs) into San Francisco Bay and various of its tributaries. The organization argued that some discharges from the district's sewage collection system were directly to surface waters, and other discharges were to municipal separate storm sewer systems (MS4s), which in turn discharged to surface waters.

On the environmental organization's motion for partial summary judgment on CWA claims involving fewer than all of the alleged spills, the court was called upon to

determine whether nine specific water bodies were waters of the United States. Applying the Scalia plurality test, the court concluded that all of the waters were waters of the United States, finding no genuine issue of material fact as to the status of any of them. Nowhere in the court's opinion did it discuss which *Rapanos* opinion or opinions were controlling for purposes of making jurisdictional determinations. The court did not cite to the Kennedy concurring opinion, despite making occasional references to evidence of significant nexus in its water-by-water jurisdictional discussions. Instead, the court applied the Scalia plurality test to each of the waters at issue.

The court observed that the regional sanitary district had provided "little in the way of quantitative or even specific qualitative evidence to dispute [the environmental organization's] evidence related to the individual bodies of water." Instead, the district argued generally that evidence showed portions of the creeks were dry at the time of some spills, and that some of the creeks regularly run dry. Noting that intermittent bodies of water can be jurisdictional under the Scalia plurality test, the court declined to find that the district's evidence on non-permanency of flow created a triable question of fact. Moreover, the court repeatedly noted that the district had failed to show that, for any of the specific waters at issue, the water was dry at the time of the alleged SSOs.

The court accepted as sufficient for summary judgment the following evidence offered by the environmental organization in support of each water's jurisdictional status:

- *San Francisquito Creek*: Evidence that beneficial uses include both warm and cold freshwater fish habitats, fish migration, fish spawning, and wildlife habitat (citing declarations and a government basin plan); evidence of a monthly mean downstream discharge of water ranging from between 0.11 and 86.7 cubic feet per second, as well as evidence of being tidally affected (citing a declaration and a U.S. Geological Survey (USGS) water data report); and evidence that the creek supports steelhead trout, which requires continuous flow during spawning season and establishes that there is a connection at least seasonally with San Francisco Bay (citing a declaration).
- *West Point Slough*: Evidence that it is subject to the ebb and flow of the tide and that it is capable of fish and shellfish harvest (citing government basin plan and a declaration).
- *Atherton Channel*: Evidence that the lower portion is subject to the ebb and flow of the tide, including evidence that there are three tidal gates controlling flow between this water and West Point Slough; evidence that it is a tributary of San Francisco Bay, and that it is hydrologically connected with West Point Slough and San Francisco Bay and affects their chemical, physical, and biological integrity (citing a declaration).
- *Los Trancos Creek*: Evidence that it is a tributary of San Francisquito Creek after passing over a diversion dam and San Francisco Bay (citing government basin plan

and declarations); and evidence that it supports habitat for steelhead trout (citing local third-party study and a declaration).

- *Corte Madera Creek*: Evidence that it flows into San Francisquito Creek (citing a USGS feature detail report for the creek, a declaration, a guide to San Francisco Bay Area creeks maintained online by a museum, and a San Francisquito watershed council document); and evidence that it supports habitat for steelhead trout (citing local third-party study and a declaration).
- *Ravenswood Slough*: Evidence that this water, which begins as a salt marsh and flows into San Francisco Bay, has year-round tidal ebbs and flows (citing a declaration); and evidence that its beneficial uses are identical to those of the Bay (citing government basin plan and a declaration).
- *Bayfront Canal*: Evidence that it is subject to the ebb and flow of the tide and has a tide gate (citing a declaration).
- *Redwood Creek*: Evidence that it is both a tributary creek and an inlet of San Francisco Bay; evidence that the upper portions have dams that form small lakes and that it is subject to the ebb and flow of the tide into its upper reaches; evidence of a continuous flow of water with a monthly mean discharge ranging from 0.31 to 3.8 cubic feet per second; and evidence of a significant nexus with San Francisco Bay based on a hydrologic connection and the creek's effect on the chemical, physical, and biological integrity of the Bay (citing a declaration).
- *Bovet Creek*: Evidence that it serves as habitat for steelhead trout; evidence that it contributes to an extended riparian and aquatic habitat for the same fauna and flora present in Los Trancos Creek and San Francisquito Creek; and evidence of a hydrologic, chemical, and biological nexus with Los Trancos Creek, San Francisquito Creek, Ravenswood Slough, and San Francisco Bay (citing a declaration).

* * *

District of Columbia

Natural Resources Defense Council v. Kempthorne, 525 F. Supp. 2d 115 (D.D.C. 2007). See also *Theodore Roosevelt Conservation Partnership v. Salazar*, 605 F. Supp. 2d 263 (D.D.C. 2009) (related case).

*At issue: **channels** (whether permanent or intermittent remains an undecided factual question) affected by discharge from wells that ultimately drain to the Colorado River*

Environmental groups sued the government, alleging that the Bureau of Land Management's approval of approximately ninety drilling permit applications in Wyoming violated the CWA and other laws. The groups claimed that the government

had violated the CWA by approving drilling activities without ensuring that the project complied with state water quality standards.

The district court denied the groups' motion for a preliminary injunction to halt drilling in the area. The court agreed with the government that the environmental groups had waived their CWA claims by failing to raise them in earlier administrative proceedings. While this determination should have ended the matter, the court went on to state in a footnote that, even if the groups had not waived their CWA claims, their likelihood of success on the merits (*i.e.*, the standard that applies on a motion for preliminary injunction) was "far from certain." In this regard, the court cited as the governing rule of *Rapanos* the Scalia plurality opinion, which the court said would exclude intermittent and ephemeral watercourses from CWA coverage. The court observed that whether the channels at issue in the case were permanent or intermittent was a factual issue not presently before it but that, in any event, the court could not conclude that success on the merits was likely.

* * *

American Petroleum Institute v. Johnson, 541 F. Supp. 2d 165 (D.D.C. 2008).

At issue: no specified waterbodies

An oil company and industry trade association sued EPA, challenging the agency's 2002 CWA rule governing oil spill prevention, control, and counter-measure planning. The 2002 rule included a regulatory definition of the term "navigable waters" that used the same definition as the 1973 rule. Plaintiffs argued that, because EPA had failed to explain how the new rule accounted for the 2001 *SWANCC* decision, the agency had promulgated the rule without a rational explanation and therefore acted illegally.

The court agreed. The 2002 rule purported to, among other things, assert federal authority over:

[a]ll 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

The court explained that this regulatory definition "is—at best—in tension with" much of the history of CWA jurisdiction. In addition, EPA did not justify the definition under the case law: EPA claimed that its new definition was not only permitted, but "supported by the case law." The court stated that, by invoking the case law as a justification for its definition, EPA was obligated "to provide at least a cursory explanation of its theory." The court did not appear to believe that EPA could justify the definition.

The court therefore vacated the regulatory definition of "navigable waters" and remanded the matter to EPA. In a footnote, the court advised that any further

proceedings that the agency might choose to initiate must account not only for the court's ruling, but also for the *Rapanos* opinion and the cases interpreting it. The court clarified that it had no occasion in this case to resolve which *Rapanos* test "now establishes the outer limits of Clean Water Act jurisdiction."

* * *

Florida

United States v. Evans, 2006 WL 2221629 (M.D. Fla. Aug. 2, 2006).

*At issue: **headwaters of Cow Creek**, which flows into the St. Johns River*

In a criminal case involving allegations of illegal discharge of pollutants into a creek, the owner of a farm labor contracting business and his wife moved to suppress evidence obtained under search warrants on the grounds that the warrants were invalid because the creek was non-jurisdictional.

The court denied the motion. In doing so, it held that the government may seek to demonstrate federal jurisdiction over the creek under *either* the Kennedy significant nexus test *or* the Scalia plurality test. [NOTE: this case was decided prior to the Eleventh Circuit's ruling in ***United States v. Robison***, discussed above.] The court determined that jurisdiction could be established if either the creek was a covered water, or it conveyed pollutants downstream to a covered water. The court found that the affidavits in support of the warrants contained facts sufficient to satisfy both *Rapanos* tests: a federal agent had observed a PVC pipe on defendants' property discharging wastewater into the creek; the creek itself is seven to eight feet wide and one foot deep and contains visibly flowing water; and city maps and aerial photos showed that the creek is a headwater of Cow Creek, which flows into the St. Johns River, a traditional navigable water. Ultimately, there was probable cause to believe that CWA jurisdiction extended to the creek.

* * *

Hawaii

Sierra Club v. City and County of Honolulu, 2008 WL 3850495 (D. Hawaii Aug. 18, 2008). *See also* *Sierra Club v. City and County of Honolulu*, 2008 WL 4922329 (D. Hawaii Nov. 18, 2008) (denying environmental organizations' motion for permanent injunctive relief); *Sierra Club v. City and County of Honolulu*, 2009 WL 32524 (D. Hawaii Jan. 6, 2009) (granting Honolulu's motion for partial reconsideration of Nov. 18, 2008 order).

*At issue: **storm drains and dry stream beds***

Environmental organizations brought a CWA citizen suit against the City and County of Honolulu for hundreds of sewage spills from the wastewater collection system and

wastewater treatment plants, and for violating the conditions of National Pollutant Discharge Elimination System (NPDES) permits. Honolulu contested those claims relating to spills to storm drains and dry stream beds on the grounds that they never reached receiving waters of the United States.

In considering this jurisdictional argument, the court began with the two tests from *Rapanos*. The court discarded the Kennedy significant nexus test as “irrelevant and inapplicable” because it concluded that this test applies *only* to isolated wetlands. The court ruled, however, that the Scalia plurality test was “clearly applicable.” Applying the Scalia plurality test to the 74 spills that reached only a storm drain, the court found insufficient evidence that the storm drains in question had at least a seasonal intermittent flow of water during part of the year. Similarly, as to the four spills that allegedly entered only a dry stream bed, the court held that the evidence fell short of showing that the stream beds had any continuous flow of water: although the environmental organizations provided the declaration of a geography professor that linked each of the stream beds/tributaries to the Pacific Ocean, the court determined that this evidence did not speak to whether there was sufficient flow in the stream to satisfy the Scalia plurality test or whether the stream bed is an ordinarily dry channel. Given a factual dispute as to all of these claims, the court denied the environmental organizations’ motion for summary judgment.

The court did, however, grant the environmental groups’ motion for summary judgment as to 148 violations. The environmental organizations sought a finding that Honolulu was in violation of its permit for 148 instances of discharging raw or partially treated sewage in the form of overflows or bypasses from the wastewater treatment plant. In opposition, and relying on *Rapanos*, Honolulu argued that, even if any of these spills violated the terms of a permit, the court lacked jurisdiction if the spills did not reach waters of the United States (*i.e.*, it lacked jurisdiction to enforce through the permit what it could not otherwise enforce under the CWA). But the court held that Honolulu could not now challenge the terms of its permit by way of a jurisdictional argument on a motion to dismiss, especially given that Honolulu had not raised the argument earlier, much less exhausted its administrative remedies. The court went on to grant the environmental groups’ motion for summary judgment as to these 148 violations for “ground-only” spills.

* * *

Idaho

United States v. Vierstra, 803 F. Supp. 2d 1166 (D. Idaho 2011) (ruling of magistrate judge denying owner’s motion to dismiss information).

*At issue: **Low Line Canal**, a man-made, seasonally flowing tributary of Deep Creek, which is a naturally occurring, perennial stream that flows into the Snake River, a tributary of the Columbia River*

In this criminal enforcement action, the government charged the owner of a concentrated animal feeding operation (CAFO) with violating the CWA by negligently

discharging process wastewater from the CAFO into waters of the United States, without a permit. Defendant moved to dismiss the information on the grounds that the receiving water, Low Line Canal, is not a water of the United States. The canal is a man-made channel that flows for six to eight months a year. It discharges to Deep Creek, a natural, perennial stream that, in turn, feeds the Snake River (a traditional navigable water). The Snake River is a tributary of the Columbia River.

The magistrate judge denied the motion, determining that the government's allegations supported a finding that Low Line Canal is jurisdictional under either the Scalia plurality test or the Kennedy significant nexus test. Under the Scalia plurality test, a tributary must be "relatively permanent" to be jurisdictional; common sense and common usage, the Supreme Court said, distinguish between a wash and a seasonal river. The magistrate judge held that "common sense and common usage forged in the Intermountain West" would support a finding that Low Line Canal is relatively permanent: water flows for six to eight months a year, and the seasonal flow is recurring, regular, perennial, and substantial. Moreover, the canal has an ordinary high water mark and a defined bed and bank. The court found it irrelevant that the canal was man-made:

. . . [T]here are many water-ways in the Intermountain West that have been re-routed, re-countered, and re-channeled in an effort to control, store, and use the limited water we have. Excluding these water-ways from the jurisdiction of the CWA when they might otherwise constitute tributaries of navigable waters makes little practical sense.

While acknowledging that it remains an open legal question whether the Kennedy significant nexus test is properly applied to a tributary (as opposed to a wetland), the magistrate judge further found that the canal had a significant nexus with the Snake River. The seasonal connection between Low Line Canal and the Snake River, via the perennial Deep Creek, is a direct, open surface water connection. The government expected to put on evidence as to the volume and time period of water flow. Additionally, samples from the canal and the creek show that these waters are significant contributors of sediment and coliform bacteria to the Snake River; indeed, where Deep Creek joins the Snake River, the river fails to meet its "total maximum daily load" (or TMDL) requirements under the CWA for sediment and phosphorus.

The magistrate judge rejected several other arguments made by defendant. First, the court held that discharges into a dry canal bed (*i.e.*, when there is no seasonal flow) still trigger federal jurisdiction. A seasonal waterway that is jurisdictional does not cease to be so because it contains no water at the time of a discharge. Second, the court determined that a water of the United States could, "in certain circumstances and depending on the discharge," also constitute a point source for a discharge to some other water of the United States. Thus, the court declined to find that, if the water were deemed to be a point source (as defendant claimed), it could not also be a water of the United States. Finally, the court rejected a federalism-styled argument that federal regulation of Low Line Canal impermissibly impinged on states' rights. The court saw no disturbance in the federal-state balance of power in this instance and observed that,

to the contrary, the nature of the state's involvement in this case suggested that the state welcomed federal intervention.

* * *

Illinois

United States v. Lippold, 2007 WL 3232483 (C.D. Ill. Oct. 31, 2007).

At issue: 2 unnamed streams on the Curry property, which come together on or immediately adjacent to the property, creating a joint stream that flows into the Sangamon River one mile downstream

The government charged defendant with violating the CWA by knowingly causing excessive and unpermitted levels of boron from stored waste on an industrial property where he worked as a consultant to contaminate the waters of the United States. Defendant moved to dismiss the indictment, arguing that the term “waters of the United States” was so vague that a conviction would violate his constitutional right to due process.

Analyzing defendant's claim in light of the facts of the case at hand (on an “as-applied” basis), the court denied the motion. Although defendant's actions had predated the *Rapanos* decision, the court noted that then-existing case law established that both permanent and intermittent streams were properly considered waters of the United States. The court went on to explain that, post-*Rapanos*, so long as the government can prove that the unnamed streams are either relatively permanent flowing waters *or* that they possess a significant nexus with the Sangamon River, a resulting conviction would not violate due process.

* * *

Indiana

United States v. Fabian, 522 F. Supp. 2d 1078 (N.D. Ind. 2007).

At issue: wetland parcel separated by a levee from the Little Calumet River (aka Burns Ditch), a tributary of Lake Michigan, the Des Plaines River, the Illinois River, and the Mississippi River

The government brought a civil enforcement action against the beneficiary of a land-owning trust for filling wetlands in violation of the CWA. The wetlands at issue are separated from the Little Calumet River (also known as Burns Ditch) by a levee 15 feet high and 130 feet wide.

On cross-motions for summary judgment, the court held that the Kennedy concurring opinion controlled the question whether the CWA covered wetlands adjacent to a nearby river. The court found the Little Calumet River to be navigable-in-fact based on the following evidence: a declaration from a U.S. Geological Survey hydrologist to the

effect that the river can and does support boat traffic (he and another hydrologist had navigated a reach of the river in an aluminum canoe to obtain data on the river's width and depth, with no need for portaging); and a 1982 Corps report finding the river to be navigable based on both present and historical use. Because the landowner's wetlands are adjacent to navigable-in-fact waters, they came within CWA coverage based on the part of the Kennedy concurring opinion that addressed *United States v. Riverside Bayview Homes, Inc.*, without the need to further identify a significant nexus.

* * *

Stillwater of Crown Point Homeowner's Association, Inc. v. Kovich, 820 F. Supp. 2d 859 (N.D. Ind. 2011).

*At issue: **Smith Ditch and adjacent wetlands**; Smith Ditch is a tributary of Main Beaver Dam Ditch, which is a tributary of Deep River, which is a tributary of Little Calumet River*

A homeowner's association and individual homeowners brought a CWA citizen suit claim against developers following a 2008 flood that caused damage to their subdivision and homes. Water had backed up behind three road crossings, each spanning Smith Ditch. The crossings had been constructed by the placement of fill in the ditch and adjacent wetlands and by the use of two culverts to convey water under the crossings. Plaintiffs alleged various violations of CWA Sections 401 and 404.

On cross-motions for summary judgment involving two of the defendants, the magistrate judge considered whether Smith Ditch and the surrounding wetlands were subject to the CWA. The court ruled that, as a matter of law, the ditch and the wetlands are jurisdictional under both the Scalia plurality test and the Kennedy significant nexus test. Defendants offered no evidence that the ditch or wetlands lay outside of federal jurisdiction, while plaintiffs presented the following evidence:

. . . the CWA § 404 permit issued to [one of the defendants], the Declaration of Restrictions in Land Use signed by [one of the defendants], the opinions of [plaintiffs'] experts Jonathan Jones, Martin Mann, and Phil Gralik, the applications for CWA § 401/404 permits for Crooked Creek Trail, and enforcement letters sent by the [Corps].

Additionally, one defendant's

own wetland consultant . . . evaluated Smith Ditch and the surrounding wetlands and found that the Greenview Place and Stillwater Parkway crossings would be constructed by placing fill in 'waters of the United States,' albeit prior to the decision in *Rapanos*. Nevertheless, he provided a factual basis for his decision, noting that "wetland 1," across the northern part of which Greenview Place was constructed, and "wetland 2," through which Stillwater Parkway was constructed, are identified on the National Wetland Inventory Map as "permanently flooded" and "seasonally flooded" respectively. [The consultant] found hydric soils, hydrology, and hydrophytic vegetation in both wetland 1 and wetland 2.

The court noted further that the Corps has designated the Little Calumet River as a traditional navigable water.

The court went on to find two of the defendants liable for civil penalties under the CWA.

* * *

Kentucky

Coxco Realty, LLC v. U.S. Army Corps of Engineers, 2008 WL 640946 (W.D. Ky. Mar. 4, 2008).

At issue: various wetlands on parcel of land in Jefferson County

A property owner brought suit for declaratory judgment to contest a post-*Rapanos* determination by the Corps that it had jurisdiction over approximately ten acres of wetlands on a property that the owner wanted to develop. The court granted the Corps' motion for judgment on the pleadings, finding that neither the Declaratory Judgment Act nor the Administrative Procedure Act provided a valid basis for the court to exercise subject matter jurisdiction over the property owner's attack on the Corps' jurisdictional determination where, as here, the Corps had neither made a permit decision nor brought an enforcement action.

* * *

Michigan

United States v. Marion L. Kincaid Trust, 463 F. Supp. 2d 680 (E.D. Mich. 2006).

At issue: wetland/beach parcel on the shore of Saginaw Bay, on Lake Huron

The government had brought a civil enforcement action against property owners for their grading and dozing activities in the wetlands of Lake Huron in violation of the CWA, but then later dropped the lawsuit. In deciding a motion by property owners to obtain attorney fees and costs as the "prevailing party" under the Equal Access to Justice Act, the court found that the government's claim that the property owners' beach was a jurisdictional wetland had been substantially justified under the pre-*Rapanos* law in effect at the time the lawsuit was filed. In dictum, the court cited the Scalia plurality opinion for what it described as the *Rapanos* "requirement," for jurisdictional purposes, of a continuous surface connection between wetlands and other covered waters.

* * *

Minnesota

United States v. Rosenblum, 2008 WL 582356 (D. Minn. Mar. 3, 2008), *aff'g with modifications United States v. Rosenblum*, 2007 WL 4969140 (D. Minn. Dec. 21, 2007) (magistrate report & recommendation to deny various defense motions), *as supplemented by United States v. Rosenblum*, 2008 WL 608297 (D. Minn. Jan. 16, 2008). *See also United States v. Rosenblum*, 2008 WL 4104692 (D. Minn. Aug. 29, 2008) (denying motions for judgment of acquittal or new trial).

At issue: sewer systems and publicly owned treatment works, which discharge to the Mississippi River

The government charged company CEO and plant manager with various crimes under the CWA related to the failure of their metal finishing company to comply with a wastewater discharge permit. The company discharged large amounts of industrial wastewater into the state's sewer system. From there, the wastewater flowed through a publicly owned treatment works (POTW), from which it was discharged into the Mississippi River. The government alleged that defendants knowingly discharged water containing excessive levels of cyanide and other metals. One of the defendants moved to dismiss the indictment against him for lack of jurisdiction, arguing that the discharge into a state POTW cannot be federally regulated as a discharge into "navigable waters" under the CWA.

A magistrate judge recommended denying the motion on the ground that, under the Kennedy concurring opinion, the sewer into which the manager made the discharge has a significant nexus with the Mississippi River. The district court agreed that the motion must be denied, but reached its conclusion based on the CWA's separate statutory scheme for pollution sources that discharge indirectly into sewer systems and POTWs. The court went on to conclude that CWA regulation of indirect wastewater discharges into sewers is a valid exercise of Congress's Commerce Clause power as a regulation of either a channel of interstate commerce or of an activity that substantially affects interstate commerce. In this case, the court noted, the regulation of POTWs that feed into navigable waters "does not implicate the scope or interpretation" of the term "navigable waters" in the CWA.

Defendants were subsequently convicted by a jury.

* * *

United States v. Huseby, 2012 WL 1004994 (D. Minn. Mar. 26, 2012).

At issue: approximately 28 acres of wetlands with a continuous surface connection to Fortythree Creek, a relatively permanent water and part of the Lake Superior tributary system

The government brought a civil enforcement action against Russ and Brady Huseby, a father and son, for logging and clearing land containing wetlands without a permit, in violation of the CWA. Beginning in 2000, Russ Huseby reestablished old logging roads

and put in new ones. The Corps further determined that from 2003 to 2009, 28 acres of an 80-acre site were converted from a wetland dominated by woody vegetation to exposed soils. Using aerial photography, reference areas, and direct observations, the Corps determined that a large portion of the site was wetland prior to defendants' activities.

On cross-motions for summary judgment, the court followed the Eighth Circuit's decision in *United States v. Bailey* and determined that jurisdiction over the wetlands at the site could be demonstrated under either the Scalia plurality opinion or the Kennedy concurring opinion. The court concluded that there was jurisdiction under either test, relying on an expert report produced by the Corps. In short, the report had found that:

(1) the wetlands on the site have a continuous surface connection with Lake Superior, a traditionally navigable water, and (2) the wetlands possess the requisite nexus to navigable-in-fact waters because the site's wetlands, in combination with similarly situated wetlands, 'significantly affect the chemical, physical, and biological integrity' of Lake Superior.

Defendants failed to present evidence to dispute the Corps' jurisdictional findings.

The court found for the government with respect to Russ Huseby's liability. But the court found for Brady Huseby on his motion, due to a lack of evidence linking him to any particular kind of work or to the discharge of a pollutant.

* * *

Mississippi

Gulf Restoration Network v. Hancock County Development LLC, 772 F. Supp. 2d 761 (S.D. Miss. 2011). See also *Gulf Restoration Network v. Hancock County Development LLC*, 2011 WL 482520 (S.D. Miss. Feb. 3, 2011) (denying company's motion to continue); *Gulf Restoration Network v. Hancock County Development LLC*, 2009 WL 3841728 (S.D. Miss. Nov. 16, 2009) (denying company's second motion to dismiss); *Gulf Restoration Network v. Hancock County Development LLC*, 2009 WL 259617 (S.D. Miss. Feb. 3, 2009) (denying company's motion to dismiss).

At issue: Bayou Maron tributary and wetlands adjacent to it; the tributary empties into Bayou Maron, which empties into Bayou La Croix, which in turn empties into the Jourdan River, which empties into the Bay of St. Louis and the Gulf of Mexico

A network of environmental groups brought a CWA citizen suit against a development company for discharging stormwater associated with industrial activity and filling wetlands, all without permits and in violation of the CWA.

The court granted the network's motion for summary judgment as to liability on the two CWA claims, finding that the "waters of the United States" element was satisfied as to

each. With respect to the CWA § 402 claim (discharging industrial stormwater without a permit), the court applied the Scalia plurality test to Bayou Maron and its tributary and determined that both are relatively permanent, standing or flowing bodies of water. (The court did not explain why it selected the Scalia plurality test for its jurisdictional analysis.) Bayou Maron is spanned by a permanent, county-built bridge; is marked on county maps; is a permanent, flowing tributary of a larger bayou that has surface-water connections to the Gulf of Mexico; and (based on averments of individual members of the network) is suitable for canoeing and boating. Similarly, the court found the Bayou Maron tributary to be a permanent, flowing stream that can be seen on county maps and in an aerial photograph. Members of the network also testified about the course of the tributary.

With respect to the CWA § 404 claim (filling wetlands without a permit), the court determined that the wetlands the development company had altered were jurisdictional under both *Rapanos* tests. The wetlands are part of a contiguous body of wetlands extending beyond the company's property, and they border the Bayou Maron tributary, Bayou Maron, and Bayou La Croix. As for the tributary, it satisfied the "relatively permanent and flowing" part of the Scalia plurality test as discussed above. Additionally, two network members said that, before and after construction, it was difficult to see where the waters of the Bayou Maron and its tributary ended and the waters of the wetlands began. Together, this evidence satisfied the Scalia plurality test. The court also determined that the Kennedy significant nexus test was satisfied because the filling and alteration of the wetlands contributed to increased flooding and pollution of the downstream Bayou Maron (according to one of the network's declarations).

At the same time, the court rejected the development company's argument that the network was required to put on expert testimony to prove that the areas in question are wetlands: the court relied on National Wetlands Inventory maps as competent evidence in this regard.

* * *

New York

Pine Tree Homeowners' Association, Inc. v. Ashmar Development Co., LLC, No. 04-cv-10006-LMS (S.D.N.Y. Jan. 29, 2008) (magistrate judge decision and order).

At issue: Pine Tree Lake, located entirely in the state of New York

Homeowners' association sued developer for discharging pollutants into Pine Tree Lake, a wholly intrastate body of water, in violation of its state permit. After a three-day trial before a U.S. magistrate judge, the jury returned a verdict for the developer. The jury found by special verdict form that the homeowners' association had failed to prove that Pine Tree Lake is a navigable water under the CWA. The court's instruction to the jury on the term "navigable waters" included both the Scalia plurality test and the

Kennedy significant nexus test, though the court’s description of the Kennedy significant nexus test referred only to wetlands.

Following the jury verdict, the homeowners’ association moved for judgment as a matter of law or, in the alternative, a new trial. The magistrate judge denied the motion, rejecting each of the association’s three arguments. First, the court disagreed with the association’s argument that Pine Tree Lake is a navigable water solely because it is navigable-in-fact, but absent evidence of any interstate or foreign commerce connection. The court did not even agree that the evidence proved the lake *is* navigable-in-fact, where the only such evidence was that a study of the lake was performed in a boat; photographs of the lake; and expert testimony that “[t]here’s boats on it.”

Second, the court disagreed that there was sufficient evidence at trial to demonstrate that the lake is a navigable water by virtue of its potential to be used by interstate or foreign travelers for recreational or other purposes. The court noted, for example, the absence of trial evidence that a public beach or boat ramp exists on the lake, or that there is any other way for members of the public to access the lake. To the contrary, there was testimony that the homeowners’ association owned the common grounds, beach area, and other properties surrounding the lake and spent 20-25% of its budget maintaining the lake.

Third, the court rejected the association’s argument that undisputed evidence at trial established that Pine Tree Lake feeds the Ramapo River, an interstate water, which—if true—would arguably make the lake a tributary of a traditional interstate navigable water. The court concluded that the evidence on this point was disputed.

* * *

United States v. Acquest Transit LLC, 2009 WL 2157005 (W.D.N.Y. July 15, 2009).

At issue: 96.6 acres of wetlands, whose waters flow into ditches, one of which joins the Millersport Highway ditch; that ditch flows through three parallel 18-inch culverts until it meets a tributary, which continues for 1.4 miles to Ransom Creek (the relevant section of which the Corps has found to be a traditional navigable water); Ransom Creek flows for 2.5 miles to Tonawanda Creek/Erie Canal, which flows into the Niagara River

The government brought a civil enforcement action against developer for unpermitted ditching, earthmoving, and fill activities on a 96.6-acre parcel of property. The government claimed that the entire property constitutes wetlands and surface waters that are waters of the United States. (Defendant did not contest that it had filled at least 13.3 acres, or that heavy construction equipment was used to do so. Nor did defendant contest any of the elements of the CWA claim for purposes of the motion, arguing instead that the property is subject to the CWA farming exemption. The court rejected this argument.) The government sought a preliminary injunction to prohibit defendant from performing further earthmoving work at the site. Among the elements to be established by the government in support of its motion was that the site constituted

waters of the United States at the time of the discharge. The government argued that the property was subject to CWA jurisdiction under either the Scalia plurality test or the Kennedy significant nexus test.

The court agreed. First, the court determined that there was evidence of a continuous connection between waters in the wetlands and downstream waters. This included the declaration of an EPA wetland ecologist who, during an inspection, observed juvenile fish in a ditch on the property. Additionally, the declaration of an EPA environmental scientist documented the flow of water from the property, through ditches, and into navigable waters, as follows:

Surface water from the wetlands flow[s] generally westward into ditches on the Property, including a ditch that borders its west boundary and runs south to north. That ditch joins a roadside ditch at Millersport Highway. The roadside ditch flows through three parallel 18-inch culverts to a channel, which the EPA terms a tributary, that travels approximately 1.4 miles to Ransom Creek. Ransom Creek flows approximately 2.5 miles to Tonawanda Creek/Erie Canal which, in turn, flows into the Niagara River. Based on direct observation in the Spring, Summer and Fall of 2008, and other evidence, the EPA concluded that the Property's west ditch and the Millersport Highway ditch flow year round. The [Corps] has determined that the section of Ransom Creek at issue here is a traditional navigable waterway. [Citations omitted.]

In addition, the court explained that there was evidence that the wetlands had a significant nexus with Ransom Creek. Relying on the declaration of the EPA environmental scientist, the court determined that the property's wetlands "provide flood water storage, filter pollutants, provide wildlife habitat, and produce organic compounds which increase the quality of the habitat of downstream waters." As a result, the wetlands "serve an important water quality function for Ransom Creek by limiting flooding and filtering sediment and toxins, and they enhance the quality of the habitat within Ransom Creek."

* * *

Stepniak v. United Materials, LLC, 2009 WL 3077888 (W.D.N.Y. Sept. 24, 2009) (adopting magistrate judge report & recommendation to deny property owners' motion for summary judgment on CWA claim). *See also Stepniak v. United Materials, LLC*, 305 F. App'x 789 (W.D.N.Y. June 11, 2010) (findings of fact and conclusions of law).

At issue: roadside drainage ditch, which drains to nearby Ellicott Creek

Property owners brought a CWA citizen suit claim against the operator of a facility that manufactures concrete products, alleging that fly-ash was washing with stormwater runoff from the operator's property into a drainage ditch. From there, they claimed, it moved into Ellicott Creek and affected their land located alongside the creek.

The court denied the property owners' motion for summary judgment, finding that the owners had failed to establish that the "highway ditch" constituted a "water of the United States" for CWA purposes. The court cited the Scalia plurality opinion for the proposition that the term does not include channels carrying intermittent or ephemeral flows, or those that periodically provide drainage for rainfall. The court also cited to the Dec. 2, 2008 joint guidance of EPA and the Corps, indicating that jurisdiction generally would not be asserted over roadside ditches that drain uplands and that do not carry a relatively permanent flow of water.

* * *

Haniszewski v. Cadby, 2009 WL 3165723 (W.D.N.Y. Sept. 29, 2009) (magistrate judge decision and order).

At issue: a drainage ditch/"wetland drain" on a parcel of land containing wetlands; it is disputed whether the ditch connects with Plum Bottom Creek, which in turn feeds the Buffalo River

Neighboring property owners brought a citizen suit against the developer of an industrial park for discharging dredged and fill material into waters of the United States without a permit, in violation of the CWA. The project site contained over 1.4 acres of wetlands, and it was undisputed that the developer had installed 400 feet of 30-inch PVC pipe at the southern edge of the site and covered it with stone, without a permit. Although the court's opinion is not entirely clear on this point, the property owners appear to have claimed that this action resulted in the filling of a drainage ditch, or what one consultant had identified as a 1.06-acre "wetland drain."

On the developer's motion for summary judgment, the magistrate judge appeared to hold that the Scalia plurality opinion provides the definitive test for whether a wetland is jurisdictional. The magistrate judge went on to deny the motion, based on the state of the factual record: the property owners contended that the drainage ditch connected at one time to Plum Bottom Creek, which flows into the Buffalo River. (The developer disputed the presence of a connection because the ditch terminates at an earthen dam supporting abandoned railroad tracks.) The property owners supported their position with a 1948 geological survey topographical map showing a stream that detoured through an underground conduit, beneath the railroad tracks, before joining Plum Bottom Creek. The property owners also submitted photographs and supporting declarations tending to show that a water known as the North Branch of Plum Bottom Creek had once traversed the property, flowed under the train tracks, and entered Plum Bottom Creek. In light of the property owners' evidence and a lack of expert or other evidence from the developer, the developer's motion failed.

* * *

George v. Reisdorf Bros., Inc., 696 F. Supp. 2d 333 (W.D.N.Y. 2010) (magistrate judge decision and order), *aff'd by* ***George v. Reisdorf Bros., Inc.***, 410 F. App'x 382 (2d Cir. 2011).

*At issue: **Tonawanda Creek and a related stream**, possibly a tributary of the creek*

Owners of a dairy farm brought a CWA citizen suit against the owner of a fertilizer, chemical, and feed distribution plant located on an adjacent parcel of land. The dairy farm owners alleged that the plant owner's operations resulted in a discharge of pollutants into Tonawanda Creek, one of its tributaries, the surface of the land, and groundwater, thereby polluting the groundwater, their well, and the creek in violation of the CWA.

On cross-motions for summary judgment, the magistrate judge found a triable issue of fact as to whether the water flowing through the dairy farm owners' property is a water of the United States. The magistrate judge ruled, without discussion, that the applicable test is provided by the Scalia plurality test (*i.e.*, is the water relatively permanent, standing, or continuously flowing?). The court found that, despite the parties' disagreement over whether the water in question was Tonawanda Creek, a tributary of that creek, or a separate stream, the evidence submitted by both sides supported the conclusion that the water is fixed and continuously present, and therefore could potentially satisfy the Scalia plurality test. The court went on to dismiss the CWA claim on other grounds.

* * *

North Carolina

United States v. Freedman Farms, Inc., 786 F. Supp. 2d 1016 (E.D.N.C. 2011). *See also* *United States v. Freedman Farms, Inc.*, 2011 WL 2534114 (E.D.N.C. June 27, 2011) (resolving motions *in limine*); U.S. Department of Justice, "Press Release: North Carolina Corporate Hog Farm and President Sentenced to Pay \$1.5 Million for Violating the Clean Water Act," Feb. 13, 2012.

*At issue: **Browder's Branch**, a perennial stream flowing into Western Prong Creek, which connects with Red Hill Swamp, which flows into White Marsh, which flows into the Waccamaw River*

The government brought a criminal action against a hog farm and its principal for allegedly discharging 300,000 gallons of hog waste into Browder's Branch stream without a permit, in violation of the CWA. The government alleged that Browder's Branch is a water of the United States, a perennial stream that flows into Western Prong Creek, which connects with Red Hill Swamp, which flows into White Marsh, which flows into the Waccamaw River (a traditional navigable water).

The court issued two pre-trial rulings addressing CWA jurisdiction. In the first of these, the court denied the government's motion to reconsider the court's preliminary instruction to the jury on what constitutes a water of the United States. The challenged

instruction indicated that jurisdiction could be established only under the Kennedy significant nexus test. The government argued that the court should allow jurisdiction to be established under *either* the Kennedy test *or* the Scalia plurality test. The court acknowledged that it was a close question, noting that the Fourth Circuit in *Precon Development Corp. v. U.S. Army Corp of Engineers* had recently declined to decide the issue. After reviewing the *Rapanos* standards and discussing how the circuits have divided over which standards control, the court concluded that a faithful application of both Supreme Court and Fourth Circuit precedent required that only the Kennedy significant nexus test be applied.

In a second pretrial ruling, the court decided two motions *in limine*. One motion was filed by the government to exclude evidence of minimal or no environmental harm. Anticipating that defendants would argue that there was no evidence that any discharge actually resulted in damage, the government argued that evidence of harm is not required to prove a knowing violation of the CWA. The court held, however, that the presence or absence of environmental harm may still be a relevant factor in establishing a significant nexus. Accordingly, the court denied the motion but invited an appropriate limiting instruction from the parties.

The other motion *in limine* was filed by defendants to exclude testimony from the government's experts on the question of whether Browder's Branch is a water of the United States or whether it possesses a significant nexus with other waters. The court granted the motion, reasoning that, because these terms have a specialized legal meaning, allowing experts to opine on them would impermissibly invade the province of the jury.

Ultimately, under a plea agreement, the farm was sentenced to fines, payment of restitution, and probation; the principal was sentenced to six months of incarceration and six months of home confinement.

* * *

Ohio

United States v. Osborne, 2012 WL 1095960 (N.D. Ohio Mar. 30, 2012), *adopting United States v. Osborne*, 2011 WL 7640985 (N.D. Ohio Dec. 15, 2011) (magistrate report & recommendation).

*At issue: **wetlands and tributaries** alleged to lie less than 0.05 miles from the Chagrin River and approximately 3.2 miles from Lake Erie*

The government brought a civil enforcement action against various defendants, including developers, for filling wetlands and tributaries in Lake County, Ohio, from 2001 to 2004 without a permit and in violation of the CWA. Developers moved to dismiss the complaint for failure to adequately plead that the waters at issue were jurisdictional under the CWA. A magistrate judge recommended denying the motion, concluding that the government's complaint pled sufficient facts to withstand the motion

under either the Scalia plurality test or the Kennedy significant nexus test. The district court adopted the recommendation of the magistrate judge, rejecting defendants' objections.

The court highlighted the following factual allegations contained in the government's complaint and outlined by the magistrate judge:

That the location of the 280-acre site is less than 0.05 miles east of the Chagrin River and approximately 3.2 miles upstream from Lake Erie, "both of which are traditional navigable waters;"

That 12,800 linear feet of waterways and a 170-acre wetland existed on the site prior to the unauthorized activities that are the subject of this action;

That the tributaries at the site are relatively permanent and that they flow either directly or indirectly through other tributaries into the Chagrin River;

That the wetland on the site had or has a continuous surface connection to one or more of the relatively permanent tributaries at the site;

That the wetland on the site is part of a larger watershed of similarly situated waters that significantly affect the chemical, physical and biological integrity of the Chagrin River and/or Lake Erie; and

That the 170-acre wetland on the site plays an important role in a variety of key ecosystem functions in the Chagrin River watershed and Lake Erie, such as: flood control, pollutant trapping and filtering, nutrient transport, and maintenance of the water quality that contributes to aquatic and wildlife habitat.

Without determining which *Rapanos* standard controls, the court noted that CWA jurisdiction lies where wetlands are adjacent to traditional navigable waters. Here, the court concluded, the government had pled the existence of wetlands within 264 feet of the Chagrin River. On this basis, the complaint successfully pled jurisdiction under the CWA and plausibly gave rise to an entitlement to relief under the Act under recent Supreme Court precedents on pleading (*Bell Atlantic Corp. v. Twombly* (2007) and *Ashcroft v. Iqbal* (2009)).

* * *

Oregon

United States v. Cam, No. 3:05-cr-141-KI (D. Or. Dec. 21, 2007) (denying property owner's motion to withdraw guilty plea).

At issue: 1.33 acres of wetlands abutting an unnamed intermittent tributary, which flows 1.75 miles to the Pudding River, which flows 28 miles to the Molalla River, which flows 1.5 miles to the Willamette River

Property owner was indicted for discharging dredged and fill material on and off of his property, in violation of the CWA. It was alleged that defendant had disturbed a wetland area covering 1.33 acres that abutted an unnamed tributary. The tributary travels 1.75 miles before entering the Pudding River, passing through four culverts along the way. The Pudding flows 28 miles to the Molalla River, which joins the Willamette River 1.5 miles later. Defendant used many different pieces of heavy equipment in his land-altering activities and was the subject of 22 cease-and-desist orders from the Corps, including two that followed his eventual guilty plea.

Subsequent to defendant's indictment, the Supreme Court handed down its *Rapanos* ruling. Two months later, defendant pled guilty to CWA violations. Prior to sentencing, however, defendant moved to withdraw his guilty plea, arguing in part that, in light of the *Rapanos* decision, the waters at issue were not waters of the United States, and so the court lacked subject matter jurisdiction. On this motion, the burden was on defendant to show a "fair and just" reason for withdrawing his plea.

The court denied the motion, based largely on two grounds: (1) proving the presence of waters of the United States goes to sufficiency of the evidence, not federal subject matter jurisdiction; and (2) defendant's counsel had analyzed the *Rapanos* ruling before the plea was entered. Nevertheless, the court decided that, "[i]n an abundance of caution," it would review the substance of the defendant's CWA jurisdictional argument to ensure that the guilty plea could be accepted "in good conscience."

With minimal discussion, the court decided to apply the Kennedy significant nexus test to the facts supporting the defendant's guilty plea. First, the court determined that the evidence established the presence of wetlands. This included evidence from a Corps wetland specialist, who took soil samples and examined aerial photographs from 1936 through 2004. Additionally, a Corps project manager visited the site 29 times over three years and made visual determinations consistent with the presence of wetlands. On one visit, the Corps project manager observed an excavator buried up to its cab in a hole filled with water and observed other holes (twenty inches in diameter) filled with standing water. Although defendant had properly raised concerns about an incomplete preliminary jurisdictional form provided by the Corps, as well as the timing of one of the Corps' site visits, defendant failed to show the absence of wetlands.

Second, the court rejected defendant's argument that the unnamed tributary adjacent to the wetlands is a "man-made ditch" not subject to CWA coverage. Defendant pointed to a 1936 aerial photograph that he claimed showed the ditch had been recently dug; he

also cited an Oregon Department of State Lands map labeling the ditch as an intermittent stream. Over the course of seven or eight site visits, defendant's expert found the tributary did not always contain water, specifically near one of the culverts. The court, however, identified substantial counter-evidence of the tributary's nature and permanence: the tributary is ten feet wide and three feet deep, and the Corps project manager found it to contain flowing water during each of her 29 site visits, including during the summer. Also, a 1923 U.S. Geological Survey map depicted the tributary as a naturally occurring stream flowing into the Pudding River, not a man-made drainage ditch. The court noted that human activity, including channelization, does not change the jurisdictional status of a water. The court concluded that, even if the tributary did occasionally run dry, this is not the kind of "remote and insubstantial" drainage ditch about which Kennedy was concerned in *Rapanos*.

Third, the court rejected defendant's argument that the Pudding River is not navigable-in-fact. Where the unnamed tributary meets the Pudding, the Pudding is 100 feet wide, and the Pudding flows year-round. The Pudding flows 28 miles to the Molalla River, which flows 1.5 miles to the Willamette. A 1979 rivers navigability study by the Oregon Division of State Lands showed that, from the late 1800s through the 1940s, the river and its tributary streams were used to transport logs from harvest sites to mills, and the same was true of the Molalla from 1904 to 1914; and that the Pudding was used by a steamboat in 1860. The evidence also showed that the river is used by kayakers in the present day and the book *Paddling Oregon* recommends the Pudding for canoes and small craft. The court discounted defendant's argument of non-navigability based on a 1983 Oregon government report on navigable waters that did not include the Pudding.

Finally, the court found no fair and substantial basis for withdrawing the plea on the basis that no significant nexus exists between the wetlands and the Pudding River. The court concluded that there was sufficient evidence to find that the unnamed tributary and its adjacent wetlands help protect the chemical, physical, and biological integrity of the Pudding, Molalla, and Willamette Rivers, and to find that defendant's repeated disturbance of the wetlands over three years affected the wetlands and surrounding areas. This evidence included a 1996 photograph depicting the unnamed tributary flooding the adjacent wetlands. Another government photo depicted dredge and fill material spilling (via a sediment plume) into the unnamed tributary after defendant had disturbed the wetlands. The evidence showed that he had disturbed soil and destroyed vegetation. No berm or other physical feature separates the wetlands from the unnamed tributary. Defendant's own testimony was that the unnamed tributary had risen seasonally and washed away portions of his yard. Corps testimony substantiated that defendant had disrupted the wetlands' capacity for biofiltration, flood capabilities, and wildlife support. Corps measurements showed the flow of the channel where it abuts the wetlands (and where it always flows continuously) to be in the range of 3.55 to 7.1 cubic feet per second. The Corps wetlands specialist took site measurements with a tape measure and transferred them to an enlarged aerial photograph, calculating that the total area disturbed was 1.33 acres. Defendant confirmed with the Oregon Department of Fish and Wildlife that neither the Pudding River nor the unnamed tributary had ever been inventoried for fish. The government did, however, submit evidence that the Pudding contains rearing habitat for spring chinook and winter steelhead. This evidence

was coupled with Corps testimony that soil disturbance negatively affects fish survival, as well as breeding, hiding, and nesting cover. The affected wetlands lie in a flat floodplain of the unnamed tributary, with similar hydrology, soil, and vegetation conditions existing at least one mile upstream and one mile downstream. The evidence supported a finding that the affected wetlands were important, especially in the context of the larger wetlands system.

Based on the foregoing, the court determined that, in no respect, had defendant met his burden of demonstrating a “fair and just” reason for withdrawing his plea.

* * *

Northwest Environmental Defense Center v. Grabhorn, Inc., 2009 WL 3672895 (D. Or. Oct. 30, 2009).

*At issue: **Grabhorn Pond**, which is a series of four interconnected pond cells forming a surface water storage reservoir used for irrigation; the pond is located within a few hundred feet of Tualatin River, as well as an unnamed creek that flows into the river; the pond is separated from the river and the creek by a high land berm*

Environmental organizations brought a citizen suit under the CWA and RCRA against the owner of a property used as a solid waste landfill, composting site, and tree farm. The case focused on Grabhorn Pond, which is a series of four interconnected pond cells forming a surface water storage reservoir used for irrigation of crops and a tree farm. The pond is located within a few hundred feet of Tualatin River, as well as an unnamed creek that flows into the river; it was undisputed that the river and the creek are waters of the United States. The pond is separated from the river and the creek by a berm of high, dry land. However, the pond is connected to the creek by two pipes (though neither allows water to flow from the pond to the creek), and there were allegations of a hydrologic groundwater connection. Plaintiffs claimed that the property owner was discharging pollutants from various point sources on the property into Grabhorn Pond, alleged to be a water of the United States, in violation of the CWA.

In an opinion and order resolving the parties’ cross-motions for summary judgment, the magistrate judge rejected the environmental groups’ argument that Grabhorn Pond is a water of the United States by virtue of being either an “intrastate lake,” or an “impoundment” of an intrastate lake or tributary pursuant to EPA regulation (40 CFR § 122.2). Plaintiffs argued that the regulation’s coverage of only those intrastate lakes “the use, degradation, or destruction of which could affect interstate or foreign commerce” conforms to the Kennedy significant nexus test. They further argued that the Kennedy significant nexus test was satisfied here by the adjacency of Grabhorn Pond to the creek and the river, both waters of the United States. The court disagreed with this application of the intrastate lake provision, finding that plaintiffs had conflated the *location* of the water body (near navigable waters) with the interstate *use* of the water body (on which the intrastate lake regulation depends). The court determined that the intrastate lake jurisdictional hook does not allow for coverage on the basis of adjacency—nor had plaintiffs presented evidence of the pond’s use in interstate

commerce. Additionally, citing the Ninth Circuit's ***San Francisco Baykeeper v. Cargill Salt Division*** decision, the court ruled that adjacency is a proper basis for CWA jurisdiction only when the water at issue is a wetland. Under plaintiffs' impoundment theory, the court noted the lack of evidence that Grabhorn Pond is a tributary of the creek (a prerequisite to the pond being an impoundment for purposes of the EPA regulation).

* * *

Benjamin v. Douglas Ridge Rifle Club, 673 F. Supp. 2d 1210 (D. Or. 2009).

At issue: Corps Creek and nearby wetlands; Corps Creek (disputed whether it is intermittent or perennial) flows into Deep Creek, which meets the Clackamas River

A former member of a small arms shooting range brought a citizen suit against the range's operator, alleging that lead bullets fired on the range had contaminated the creek and wetlands located on the property in violation of the CWA. The operator's property is traversed by Corps Creek (whether the creek is intermittent or perennial was disputed), which meets up with Deep Creek 2 1/4 miles downstream. Deep Creek flows for two miles before joining with the Clackamas River. There are earthen berms (intended to collect spent rounds) on either side of Corps Creek. A report prepared by plaintiff's expert showed elevated levels of lead in various portions of the property, including the wetlands, berms, and banks of Corps Creek. Although the Oregon Department of Environmental Quality (ODEQ) had made similar findings with respect to lead contamination, ODEQ entered into a consent order with the operator under which it would continue to operate while complying with an "environmental stewardship plan" prepared by a contractor.

The operator moved for summary judgment on the CWA claim on the grounds that neither Corps Creek nor the surrounding wetlands are waters of the United States. The court denied the motion based on the following:

1. Corps Creek: The operator argued that Corps Creek is not a water of the United States because it lacks a significant nexus to water quality in the Clackamas River. Relying on an opening left by the Ninth Circuit in *City of Healdsburg*, the court determined that a water is jurisdictional if it satisfies *either* the Scalia plurality test *or* the Kennedy significant nexus test. The court went on to hold, however, that the Kennedy significant nexus test applies only to wetlands, not tributaries. [But see ***Environmental Protection Information Center v. Pacific Lumber Co.***, discussed above, holding that the significant nexus test applies to tributaries.] The court then applied the Scalia plurality test to Corps Creek, asking whether it is "relatively permanent." Finding a genuine issue of material fact in the record with respect to whether Corps Creek flows continuously, the court denied the motion.

2(a). Surrounding wetlands/Kennedy concurring opinion: The court turned to the question of whether the wetlands on the property have a significant nexus with the Clackamas River. As a legal matter, the court began by determining that the Kennedy

significant nexus test is satisfied by a showing of requisite “chemical, physical, *or* biological” connection (*i.e.*, there is no requirement of showing chemical, physical, *and* biological connections). The court nevertheless identified record evidence of all three kinds of connections. First, regarding the *physical connection*, the court cited reports showing that Corps Creek overflows during storm events and floods certain wetlands on the property. Plaintiff also submitted declarations supporting the position that a past continuous surface water connection between other wetlands and Corps Creek had been severed by the operator’s prior ditching and filling activities. The court further noted the fact that water in yet other wetlands originates in freshwater springs and flows into Corps Creek year-round.

Second, regarding the *ecological connection*, the court began by noting that the Oregon Department of Forestry had listed Corps Creek as a “salmon-bearing stream.” Also, the stream had been designated as essential salmon habitat and, under Oregon regulations, areas so designated include hydrologically connected wetlands. Furthermore, the court pointed out that the Clackamas River Basin Council had concluded that the Deep Creek Watershed, of which Corps Creek is a part, plays an important role in maintaining the genetic and population diversity of the lower Clackamas River native coho and steelhead populations.

Third, regarding the *chemical connection*, the court explained that soil samples demonstrated that much of the parcel of land was contaminated by lead. Given the regular flooding of Corps Creek, it is “inevitable” that the water quality of Corps Creek would be impacted—a conclusion supported by the results of sediment testing of the creek bed, which showed excess levels of lead. Plaintiff’s expert found that there was an environmental risk both onsite and downstream, as excess lead can accumulate in fish tissue. Additionally, the expert opined in a declaration that heavy metals impact aquatic invertebrate populations by altering algal and plant populations. In turn, a reduction in invertebrate populations, a source of nutrition for salmon, would significantly impact salmon in the Clackamas River.

Although the court found that each wetland on the property maintains a significant nexus with the Clackamas River, the court observed that, “given the similarities shared by the wetlands at issue,” plaintiff could have satisfied the Kennedy significant nexus test by demonstrating their nexus to the creek “as a group.”

2(b). Surrounding wetlands/Scalia plurality opinion: Applying the Scalia plurality test to the wetlands on the property, the court identified a factual dispute as to whether some wetlands, which had been destroyed by artificial means, had historically maintained a hydrologic connection to Corps Creek. This provided a further basis to deny the operator’s motion for summary judgment.

* * *

Pennsylvania

United States v. Pozsgai, No. 88-cv-6545 (E.D. Pa. Mar. 8, 2007) (memorandum opinion and order granting government’s motion for an order of contempt), *appeal dismissed*, No. 07-1900 (3d Cir. 2009) (clerk’s order dismissing case for failure to prosecute). *See also United States v. Pozsgai*, 999 F.2d 719 (3d Cir. 1993) (affirming original civil judgment in the case), and *United States v. Pozsgai*, 897 F.2d 524 (3d Cir. 1990) (parallel federal criminal proceedings against John Pozsgai).

*At issue: **Pozsgai forested wetland site**, which is connected by a seasonal stream to the Pennsylvania Canal, which flows into the Delaware River*

The government brought a successful pre-*Rapanos* (and pre-*SWANCC*) civil enforcement action against landowners for filling wetlands without a permit. The district court issued a permanent injunction and ordered the landowners to implement a restoration plan. The Third Circuit affirmed. The government later sought an order of contempt against the landowners for both continuing to fill the wetlands and failing to comply with the restoration plan. The landowners argued that the Supreme Court’s ruling in *Rapanos* prevented a contempt finding.

The district court disagreed. In a brief opinion, the court first determined that the Kennedy concurring opinion applied “for purposes of this litigation.” Next, the court found that the wetlands at issue satisfied the Kennedy significant nexus test, as the government had produced evidence showing “a path from the property here to navigable waters.” This included the opinion of an expert witness who, interpreting aerial photography, concluded that a stream between the wetland site and the Pennsylvania Canal “flows continuously for most of the year, except during summer and early fall,’ although rain provides some temporary flow during those times.” The court added that, even if the property was not jurisdictional under *Rapanos*, the landowners had exhausted all appeals, and a change in the law did not absolve them of contempt.

* * *

South Carolina

Deerfield Plantation Phase II-B Property Owners Association, Inc. v. U.S. Army Corps of Engineers, 801 F. Supp. 2d 446 (D.S.C. 2011).

*At issue: various features located on a former golf course: **upland ditches, ponds, and swales**, and the **upper reach of a non-navigable tributary***

Deertrack sought to sell its property, a former golf course, to a developer that intended to build a residential subdivision. In a 2010 jurisdictional determination (JD), the Corps concluded that 0.37 acres of the property (consisting principally of two non-navigable tributaries) were subject to the CWA. A homeowners’ association sued the Corps and

others, challenging as arbitrary and capricious the Corps' determination that various geographic features located on Deertrack's 85-acre parcel were non-jurisdictional.

The Corps' JD for the property was conducted pursuant to a joint EPA-Corps post-*Rapanos* guidance document. Information relied upon by the Corps included: infrared, aerial photography from 1994, 1999, and 2006; topographic maps; the Corps' own records, indicating that construction associated with the former golf course likely predated CWA regulation; a 1974 U.S. Department of Agriculture soil survey for Horry County, SC, which indicated the "potential" presence of hydric soils; a 1984 survey from the U.S. Geological Survey showing no evidence of wetlands or waters on the property; and a U.S. Fish & Wildlife Service National Wetlands Inventory map for the area indicating that the tract contained no wetlands or water features except for open ponds. Additionally, a Corps supervisory biologist conducted two onsite visits, accompanied in one instance by an EPA expert in wetlands enforcement. The Corps biologist found no relic vegetation indicating past wetlands. The Corps concluded that the property had been so altered in the past to construct the golf course that one could not conclusively determine whether the site was ever a wetland and, if there had been wetlands, they were likely filled prior to CWA regulation.

Nevertheless, the Corps asserted jurisdiction over two non-navigable tributaries located on the property. The first flows offsite through a box culvert, then through a stormwater detention pond and into a culvert under a highway, and empties into Dogwood Lake (a water of the United States) before flowing into the ocean. The Corps found that this tributary has a firm, sandy bottom and a clearly defined channel free of vegetation; it also evidenced groundwater recharge and a clearly defined ordinary high water mark (OHWM), as well as "sinuosity." These characteristics combined to demonstrate a relatively permanent flow. A second, non-navigable tributary on the property, which flowed into the first, exhibited many of the same characteristics to a point upstream where vegetation became thick and prevalent and the evidence of a relatively permanent flow disappeared. The Corps did not assert jurisdiction upstream of the point at which these changes became evident.

Finally, the Corps determined that the remaining water features on the property, consisting of a series of upland ponds interconnected by ditches and swales, were non-jurisdictional under both *Rapanos* tests. The ditches and swales demonstrated a prevalence of vegetation and a lack of either an OHWM or sinuosity. They conveyed water from ponds and surrounding upland areas only during and after storms, with no evidence of groundwater recharge. As for the ponds, the Corps determined that they were man-made, with no evidence of existent or remnant wetlands or tributaries. They appeared intended to retain water for aesthetic reasons associated with typical golf course design.

At the outset, the court noted that this case was "unusual" as compared to the more typical situation, where a regulated party disputes the Corps' assertion of jurisdiction over water bodies on its property. The court then addressed Deertrack's argument on a cross-motion for summary judgment that the court lacked subject-matter jurisdiction to hear a challenge to the Corps' "negative" JD. The court rejected this argument,

concluding that legal consequences do flow from a “negative” determination, as any developer could conceivably begin to immediately fill and dredge the non-jurisdictional portion of the property. [Compare with *Fairbanks North Star Borough v. U.S. Army Corps of Engineers*, discussed above.]

The court then turned to the merits. It first noted that all parties agreed that, if either *Rapanos* test was satisfied as to any of the disputed waters, CWA jurisdiction attached. Thus, the court declined to determine as a legal matter which test or tests from *Rapanos* controlled.

The court went on to reject the homeowners’ association’s claims that the Corps had acted arbitrarily and capriciously in declining to assert jurisdiction over certain of the property’s water features under the Scalia plurality test. Although there was conflicting evidence as to whether the parcel had been excavated from wetlands (*e.g.*, the homeowners’ association’s environmental expert had performed soil borings that he said evidenced that the ponds were constructed from wetlands), the court determined that the Corps had reasonably resolved the conflict in favor of its own experts. Furthermore, the Corps’ consideration of flow as a factor in determining the relative permanence of waters was neither unreasonable nor inappropriate. And, the Corps’ determination that the ditches, swales, and ponds were at best ephemeral—and failed to evidence relatively permanent flow—was not arbitrary or capricious. Similarly, with respect to its determination that the second, non-navigable tributary on the property ceased to be jurisdictional above a certain point, the Corps had provided a “thorough explanation.”

Nor, the court ruled, had the Corps acted in an arbitrary or capricious manner in declining to find that the disputed water features had a significant nexus with downstream navigable waters. The Corps determined that there was no evidence of present or past wetlands, and that the existing waters had low volume, duration, and frequency of flow. As a result, the ability of any of these waters to affect the chemical, physical, or biological integrity of downstream waters was at best insubstantial and speculative.

* * *

Tennessee

United States v. Roberts, ___ F. Supp. 2d ___, 2011 WL 5826614 (M.D. Tenn. Nov. 17, 2011). *See also United States v. Roberts*, 2011 WL 5374563 (M.D. Tenn. Nov. 7, 2011) (granting and denying in part government’s motion for partial summary judgment).

At issue: Snake Creek, part of the upper channel of Egypt Hollow, which is a tributary of Tumbling Creek, which flows into the Duck River

The government brought a civil enforcement action against ranch owners for filling a stream without a permit, in violation of the CWA. The government alleged that they had constructed a sixty-foot-high, 400-foot-long earthen dam across “a pristine stream ecosystem” to impound water creating a sixty-acre reservoir.

Defendants filed motions *in limine* to exclude testimony from various of the government's experts. Each expert was to offer opinions bearing on the central issue in the case: whether the dam had been built on a perennial stream and a water of the United States. In resolving the motions, the court first reviewed the state of the law on CWA jurisdiction to determine which *Rapanos* test, or tests, to apply. The court concluded that it should "defer ruling on the question, being of the view that, if and when this case goes to trial, there may be controlling precedent or at least some further guidance on the issue." For purposes of deciding the motions *in limine*, the court "assume[d] that the considerations set forth in both the plurality and concurring opinions in *Rapanos* are to be used by the jury in determining whether the allegedly perennial stream in this case constitutes a 'water of the United States.'"

The court then turned to defendants' challenges to five government experts:

1. *A hydrologist and surface-water specialist with the U.S. Geological Survey*, who would testify that, prior to the construction of the dam, Snake Creek was likely a perennial stream at the location where the dam was built, and also upstream. This expert's opinions were based on results from the Low-Flow and Flow-Duration program and the StreamStats module, both developed by the U.S. Geological Survey for application to streams in Tennessee (and both publicly available online). The court rejected defendants' challenges to this expert, including on the grounds that the program's results have never been admitted into evidence to show the historical characteristics of a single stream, and that the expert made no effort to field-validate or otherwise ground-truth the results.

2. *An environmental scientist, who is a licensed geologist and a qualified hydrological professional with an engineering and consulting firm*. He would testify that Snake Creek, where the dam is constructed, and upstream of that, is a perennial stream; that the creek affects the chemical, physical, or biological integrity of the Duck River; that the reservoir has impacted between 3,000 and 6,600 linear feet of Snake Creek and unnamed tributaries; and that the government's proposed restoration plan would benefit the environment. The court summarily rejected a multitude of objections to this expert. The court acknowledged that "in formulating his opinion, [the expert] relied not just upon his own site visit, but also upon such things as topographical maps, statistical modeling, a stream survey and habitat assessment form, and [a report commissioned by defendants to opine about the effect on aquatic resources of a proposed impoundment at a different location on the ranch], all of which were prepared by others."

3. *An environmental scientist employed by EPA*, who would testify that, based on his review of aerial photography, a decades-old stream existed at the dam site prior to and up to the dam's construction. According to the court, this expert

reviewed some 14 aerial photographs of Egypt Hollow from 1953 through 2010 under various magnifications to analyze the features and conditions appearing on the photographs. He used a geographic information system ("GIS") to geographically reference and overlay the photographs so that the same locations

could more easily be examined across the various photographs under consideration, to examine specific features close up, and to look at Snake Creek in the context of the surrounding landscape. Additionally, [he] looked at USGS and [USDA] maps in an effort to confirm his conclusion that the aerial photographs showed a decades old stream at the dam site prior to its construction. . . .

[His opinion] is not based solely upon the existence or absence of water, but is also based upon his observation of drainage patterns and riparian vegetation.

Defendants did not object to this expert's qualifications to interpret individual photographs, but rather to his drawing conclusions by inferring them. The court rejected this argument, noting that this expert is presenting "merely a piece of the puzzle;" is not being called to testify about inferences; and can be cross-examined.

4. *A university professor who is a hydro-geologist with expertise in cave and karst studies*, who would testify that Snake Creek at the site of the reservoir is a perennial stream fed by ground water during base flow and by one known perennial spring located approximately 900 feet upstream. The court agreed with defendants that this expert's report was problematic, because it failed to provide the basis and reasons for his opinions. The court decided to allow him to testify—in part because he had been deposed in the case—but called it a "close question."

5. *A wildlife and fisheries biologist for the Tennessee Wildlife Resources Agency*, who would testify about the effects of tributary impoundment on the biota of Duck River. The court noted that "conspicuously absent [from his expert report] are opinions particular to Egypt Hollow." The court granted the motion to exclude this witness's testimony, largely because his testimony assumed that the impoundment in this case was built on a flowing stream. The court wrote: "[e]ffectively, the government is seeking to put [this expert] on the stand so that he can describe for the jury a parade of horrors without having first established that the circus is even in town. To allow the government to do so through this witness would prejudice the defendants because [this expert] cannot even say what damage, if any, the dam in this case caused."

* * *

Texas

United States v. Chevron Pipe Line Co., 437 F. Supp. 2d 605 (N.D. Tex. 2006).

At issue: intermittent stream, usually dry in the absence of a significant rainfall event, which connects via two other intermittent waters (Ennis Creek and Rough Creek) to the Double Mountain Fork of the Brazos River, then to the Brazos River

In a civil action brought by the government to impose fines against an oil pipeline company for incomplete clean-up of an oil spill in violation of the CWA (as amended by the Oil Pollution Act), the court granted the company's motion for summary judgment. The court declined to find jurisdiction over the intermittent stream where spilled oil had ponded. The court based its decision on the Scalia plurality opinion and pre-*Rapanos* decisions of the Fifth Circuit. In a footnote, the court added that the government had failed, in any event, to present evidence that would satisfy the Kennedy significant nexus test (which the court characterized as "ambiguous," "vague," and "subjective"). Ultimately, the court determined, "absent actual evidence that the site of the farthest traverse of the spill is *navigable-in-fact* or adjacent to an open body of navigable water," no significant nexus is present "under the law of this circuit."

This opinion issued just days after the Supreme Court handed down *Rapanos*.

* * *

United States v. Brink, 795 F. Supp. 2d 565 (S.D. Tex. 2011). *See also United States v. Brink*, 2011 WL 835828 (S.D. Tex. Mar. 4, 2011) (denying government's motion for partial judgment on the pleadings regarding affirmative defenses of estoppel and waiver).

At issue: a segment of La Para Creek, near where this non-navigable tributary flows into the Nueces River; the creek also can be considered a wetland adjacent to the Nueces

The government brought a civil enforcement action against property owners for constructing a dam across La Para Creek without a permit, in violation of the CWA. Defendants owned land on either side of the non-navigable creek, where it joins the Nueces River. The concrete dam was intended to serve as an erosion-control device and a means of impounding a modest amount of water.

The court granted the government's motion for summary judgment on its CWA claim and ordered defendants to remove the structure on La Para Creek and restore the area to its pre-construction condition. In reaching this result, the court concluded that the segment of La Para Creek on which defendants built their dam constituted waters of the United States.

The bulk of the court's jurisdictional discussion focused on the Scalia plurality opinion, providing no analysis of which test from *Rapanos* should be controlling under these circumstances. (Similarly, an earlier ruling of the court on the government's motion for

judgment on the pleadings cited to only the Scalia plurality opinion in a passing reference to *Rapanos*.) Applying the Scalia plurality test, the court determined that La Para Creek was “relatively permanent” and thus jurisdictional. Photographs from the Corps showed the creek having a water level of 93.7 feet above mean sea level, following construction of the dam. Another photo showed the creek containing water prior to construction, even though the dam was built during the dry season. A U.S. Geological Survey map showed the creek flowing into the Nueces River. And, while an affidavit from one of the defendants stated that the creek frequently held little or insubstantial water prior to the building of the dam, this was insufficient to create a genuine issue of material fact as to whether the creek was seasonally flowing.

In a footnote, the court observed that La Para Creek also constituted a non-navigable wetland directly adjacent to a navigable water (the Nueces River). Because of this adjacency, the court said, no further showing of a significant nexus between the creek and river was necessary pursuant to the Kennedy concurring opinion.

* * *

Virginia

United States v. Sea Bay Development Corp., 2007 WL 1169188 (E.D. Va. Apr. 18, 2007). *See also United States v. Sea Bay Development Corp.*, 2007 WL 1378544 (E.D. Va. May 8, 2007) (denying defendants’ motions to dismiss for lack of subject matter jurisdiction, insufficient process, and failure to state a claim).

At issue: wetlands containing previously-constructed ditches that are connected to Bells Mill Creek, which flows into the Southern Branch of the Elizabeth River

The government filed a civil enforcement action against property owners for performing excavation work that resulted in the filling of jurisdictional wetlands. Defendants claimed that the work was done to facilitate farming activities by a tenant farmer. The government argued, however, that the work was intended to increase drainage on the land, clearing the way for a new housing development.

The court denied defendants’ motion to dismiss the case for lack of jurisdiction, in which defendants argued that the property was outside the regulatory scope of the CWA. Without reaching the issue of which *Rapanos* test(s) to apply, the court ruled that the question of whether or not the property falls under the purview of the CWA term navigable waters, as construed by the Supreme Court, goes to the merits of the case and does not implicate the court’s subject matter jurisdiction.

* * *

United States v. Bedford, 2009 WL 1491224 (E.D. Va. May 22, 2009).

At issue: 33-acre parcel consisting almost entirely of inventoried wetlands, which drain to a navigable tidal tributary that flows into Nawney Creek, which is navigable to Back Bay and into the Atlantic Ocean

The government brought a civil enforcement action against Cody Bedford and his tree service company for unauthorized discharge of pollutants in violation of the CWA. Bedford had purchased the 33-acre parcel of land in Virginia, which he used to store heavy equipment belonging to his company. Almost the entire site consists of wetlands, which had been mapped on the National Wetlands Inventory map. The wetlands drain to (and have a direct hydrologic surface connection to) the Southern Tributary, a tidal tributary that is navigable by rowboat or canoe; navigability of the tributary is restricted by only a culvert where a road passes overhead. The Southern Tributary flows into Nawney Creek, which hosts “piers and recreational structures” on its banks from which boaters launch seagoing vessels. Nawney Creek flows into Back Bay about 1,000 feet from Bedford’s parcel. The Back Bay waters extend south into North Carolina, to other named bays and sounds, before connecting with the Atlantic Ocean at Oregon Inlet.

Bedford purchased the parcel of land in 2003, against the advice of a wetland scientist who had evaluated the land and cited the presence of wetlands and the need for a permit. Bedford then cleared, graded, and filled the site, ignoring repeated warnings from the Virginia Department of Environmental Quality. Bedford deposited at least 83 truckloads of fill material at the site, and he was hostile and uncooperative with state and federal personnel investigating the violations. In 2007, the government brought an action for injunctive relief and civil penalties.

A magistrate judge held an evidentiary hearing (at which the defendants failed to appear). In setting forth his findings of facts and conclusions of law, the court determined that the wetlands on Bedford’s land satisfied both the Scalia plurality test *and* the Kennedy significant nexus test. With respect to the Scalia plurality test, evidence from the hearing showed a continuous surface water connection between the wetlands and the Southern Tributary, with no clear demarcation between the two. The evidence further showed that the Southern Tributary is a perennial stream connected to traditional interstate navigable waters. And the magistrate judge determined that, even if the Southern Tributary were found not to be navigable-in-fact, the wetlands satisfied the Kennedy significant nexus test. The opinion did not set forth which evidence supported this conclusion, though the evidence evidently included aerial and other photographs, as well as testimony from environmental scientists with EPA and the Corps, and from the previous owner of Bedford’s property.

The district court adopted the magistrate judge’s report and recommendation, with minor amendments, and entered a default judgment in favor of the government for \$90,000. The court also imposed a deed restriction, in the form of a conservation easement, on 24 acres of wetlands at the site to ensure their protection in perpetuity.

* * *

Wyoming

United States v. Hubenka, No. 10-CV-93J (D. Wyo. Aug. 30, 2011). *See also United States v. Hubenka*, 438 F.3d 1026 (10th Cir. 2006), *cert. denied*, 549 U.S. 850 (2006) (prior criminal proceedings involving same defendant and issues).

*At issue: the **Wind River**, a braided stream flowing through multiple channels within a broad flood plain; the Wind River becomes the Bighorn River, an interstate river, which flows into the Yellowstone River*

The government filed a civil enforcement action against ranch owner for failing to remove a series of four dikes he had caused to be erected in the Wind River in 2000, by the use of heavy equipment. The Wind River is a braided stream that flows through multiple channels within a broad flood plain; the river becomes the Bighorn River, an interstate river, which flows into the Yellowstone River, a navigable water. The Wind River is a permanent, continuously flowing body of water at the location of the dikes. Defendant had refused to restore the impacted areas and in 2004 was charged with and convicted of three criminal violations of the CWA. He was placed on probation for one year and ordered to restore the riverbed and remove the dikes. He lost his appeal of the criminal conviction. He never removed the dikes.

On the government's motion for summary judgment in the new case against defendant, the principal issue for the court to resolve was whether the Wind River is a water of the United States—given that the *Rapanos* decision had been issued by the Supreme Court subsequent to defendant's earlier criminal conviction. Analyzing the state of the law on CWA jurisdiction, the court concluded that the government could seek to establish jurisdiction under either the Scalia plurality test or the Kennedy significant nexus test. Here, the court found the Scalia plurality test was satisfied, as the Wind River is clearly a river in the ordinary parlance and flows into traditional interstate navigable waters. The government also maintained that the Wind River is a traditional navigable and satisfied the Kennedy significant nexus test, but the government did not advance these alternative grounds for jurisdiction in its summary judgment motion.

FEDERAL COURT DECISIONS CITING TO RAPANOS WITH MINIMAL DISCUSSION

Acquest Wehrle LLC v. United States, 567 F. Supp. 2d 402, 407 n.5 (W.D.N.Y. 2008) (describing, without analysis, the *Rapanos* opinions in the context of a grant of federal defendants' motion to dismiss Administrative Procedure Act and takings claims, and denial of plaintiff's motion to amend complaint seeking exemption from CWA coverage). *See also Acquest Wehrle LLC v. United States*, 2009 WL 899436 (W.D.N.Y. Mar. 30, 2009) (granting Town of Amherst's motion to dismiss).

Brace v. United States, 72 Fed. Cl. 337, 356 (2006) (citing Kennedy concurrence for proposition that the existence of wetland regulations, as well as their application to farms, "indisputably serve an important public purpose—one which benefits plaintiff as

members [sic] of the public at large”), *aff’d*, *Brace v. United States*, 250 F. App’x 359 (Fed. Cir. 2007).

Butte Environmental Council v. U.S. Army Corps of Engineers, 620 F.3d 936, 940 (9th Cir. 2010) (citing Scalia plurality opinion’s discussion of requirements for wetland adjacency in support of well-established proposition that Corps may reasonably require permits for a discharge of fill material into wetlands adjacent to waters of the United States), *amending and superseding earlier filed opinion*, 607 F.3d 570 (9th Cir. 2010).

California Sportfishing Protection Alliance v. Callaway, 2012 WL 947483, at *5-*6 (E.D. Cal. Mar. 20, 2012) (magistrate order denying defendant’s motion to dismiss) (rejecting as-applied constitutional challenge to Clean Water Act made by *pro se* defendant at motion-to-dismiss stage of proceedings, and noting that in *Rapanos*, “the definition of navigable waters was narrowed in a fractured opinion, but that case was one of statutory definition, not constitutional jurisprudence”).

California Sportfishing Protection Alliance v. Shamrock Materials, Inc., 2011 WL 5223086, at *1 (N.D. Cal. Nov. 2, 2011) (magistrate order denying defendants’ motion to dismiss) (citing Scalia plurality opinion alone for meaning of the phrase “waters of the United States”).

Downstream Environmental, LLC v. Gulf Coast Waste Disposal Authority, 2006 WL 1875959, at *12 n.6 (S.D. Tex. Jul. 5, 2006) (characterizing the two jurisdictional tests that emerged from *Rapanos* but declining to address whether plaintiff had “alleged that the illegal waste dumping and disposal activities occurred in navigable waters”). *See also Downstream Environmental, L.L.C. v. Gulf Coast Waste Disposal Authority*, 2006 WL 3246348, (S.D. Tex. Nov. 7, 2006) (denying postjudgment motion for sanctions).

In re Everglades Island Boat Tours, LLC, 484 F. Supp. 2d 1259, 1262 (M.D. Fla. 2007) (citing to Scalia plurality opinion for proposition that “the traditional understanding of ‘navigable waters’ is not the full extent of Congressional power, and in various statutes ‘navigable water’ has been defined far more broadly (although it is not without limits)”).

Foti v. City of Jamestown Board of Public Utilities, 2011 WL 4915743, at *15 (W.D.N.Y. Aug. 15, 2011) (magistrate report & recommendation) (citing Scalia plurality opinion for proposition that a discharge to intermittent channels of a pollutant that naturally washes downstream likely violates the CWA, even if the pollutant does not discharge “directly” into covered navigable waters), *adopted by Foti v. City of Jamestown Board of Public Utilities*, 2011 WL 4915739 (W.D.N.Y. Oct. 17, 2011).

Friends of the Everglades v. South Florida Water Management District, 570 F.3d 1210, 1226-27, 1226 n.9 (11th Cir. 2009) (citing Kennedy concurring opinion for proposition that agricultural runoff from farms along the Mississippi River creates an annual hypoxic “dead zone” in the Gulf of Mexico that is nearly the size of New Jersey; and citing *Rapanos* generally in support of the proposition that a statement from the

CWA’s legislative history appeared intended to extend application of the Act “to cover as much water as the Commerce Clause would allow”).

Hernandez v. Esso Standard Oil Co., 2009 WL 1586928, at *1 (D.P.R. June 2, 2009) (upholding jury finding of liability under the CWA “predicated upon the sufficiency of the hydrologic connection between contaminated groundwaters at La Vega and the surface waters of the Piñonas River”). Note: approximately 14 additional orders and opinions have issued in this case.

Humane Society of the United States v. HVFG, LLC, 2010 WL 1837785, at *11 n.18 (S.D.N.Y. May 6, 2010) (citing Scalia plurality opinion for proposition that the discharge of a pollutant to navigable waters from a point source need not be “directly” into a navigable waterway to constitute a violation of the CWA).

In re Katrina Canal Breaches Litigation, 324 F. App’x 370, 375 (5th Cir. 2009) (per curiam) (citing Scalia plurality opinion for proposition that the meaning of “navigable waters” in the CWA is broader than the traditional understanding of the term).

Little Lagoon Preservation Society, Inc. v. U.S. Army Corps of Engineers, 2008 WL 4080216, at *18 n.31 (S.D. Ala. Aug. 29, 2008) (citing *Rapanos* dissent for proposition that “not every placement of fill or dredged material into the waters of the United States requires a § 404 permit. Only when such fill comes from point sources—discernable, confined and discrete conveyances—is a § 404 permit needed”).

National Association of Home Builders v. U.S. Army Corps of Engineers, 663 F.3d 470, 472-73 (D.C. Cir. 2011) (holding that homebuilders trade association lacked Article III standing to challenge Corps’ nationwide general permit (NWP 46) as unlawfully asserting jurisdiction over non-tidal upland ditches; opinion does not cite *Rapanos*), *reversing and remanding with instructions to dismiss National Association of Home Builders v. U.S. Army Corps of Engineers*, 699 F. Supp. 2d 209 (D.D.C. 2010). *See also National Association of Home Builders v. U.S. Army Corps of Engineers*, 539 F. Supp. 2d 331 (D.D.C. 2008) (denying Corps’ motion for judgment on the pleadings on standing grounds); *National Association of Home Builders v. U.S. Army Corps of Engineers*, 519 F. Supp. 2d 89 (D.D.C. 2007) (denying motion to intervene brought by environmental organization).

National Association of Home Builders v. Environmental Protection Agency, 667 F.3d 6, 9-10 & n.7, 13 & n.8 (D.C. Cir. 2011) (holding that homebuilders trade association lacked Article III standing to challenge determination by EPA and the Corps that two reaches of the intermittently flowing Santa Cruz River in Arizona are traditional navigable waters and citing, in passing, the Scalia plurality opinion and Kennedy concurring opinion from *Rapanos*, as well as federal agency efforts to develop guidance documents), *aff’g on alternative grounds National Association of Home Builders v. Environmental Protection Agency*, 731 F. Supp. 2d 50, 52 (D.D.C. 2010) (dismissing complaint as requiring unallowable pre-enforcement review under the CWA). *See also National Association of Home Builders v. U.S. Environmental Protection Agency*, 675 F. Supp. 2d 173 (D.D.C. 2009) (denying government’s motion to transfer venue).

Natural Resources Defense Council v. Federal Aviation Administration, 564 F.3d 549, 553 n.2 (2d Cir. 2009) (citing to Kennedy concurrence in *Rapanos* for meaning of term “jurisdictional wetland”). See also *Natural Resources Defense Council v. Federal Aviation Administration*, 257 F. App’x 454 (2d Cir. 2007) (order modifying interim stay).

Northwest Bypass Group v. U.S. Army Corps of Engineers, 470 F. Supp. 2d 30, 38 & n.11, 40-41, 41 nn.14-15 (D.N.H. 2007) (discussing *Rapanos* with respect only to the issue of standard of review (“substantial evidence” versus “arbitrary and capricious”). See also *Northwest Bypass Group v. U.S. Army Corps of Engineers*, 552 F. Supp. 2d 97, 108 n.14 (D.N.H. 2008) (noting, in the context of ruling on cross-motions for summary judgment, that “there is no argument on either side that the Corps lacked jurisdiction over the wetlands at issue”).

Norton Construction Co. v. U.S. Army Corps of Engineers, 280 F. App’x 490, 494 (6th Cir. 2008) (characterizing *Rapanos* as a case that “involved [an] agency interpretation[] that expanded the scope of federal jurisdiction at the expense of state sovereignty, and thus involved federalism concerns, as well as concerns about the proper scope of the Commerce Clause”), *aff’g Norton Construction Co. v. U.S. Army Corps of Engineers*, 2007 WL 1431907 (N.D. Ohio May 14, 2007). See also *Norton Construction Co. v. U.S. Army Corps of Engineers*, 2006 WL 3526789 (N.D. Ohio Dec. 6, 2006) (granting in part Corps’ motion to dismiss).

Ogeechee-Canoochee Riverkeeper, Inc. v. T.C. Logging, Inc., 2009 WL 2390851, at *1 (S.D. Ga. Aug. 4, 2009) (following Eleventh Circuit *Robison* decision and noting that “navigable waters” can include wetlands if they have a significant nexus to traditionally navigable waters; no dispute, however, that the logging road at issue in this case “was built in waters of the United States”).

Ohio Valley Environmental Coalition, Inc. v. Coal-Mac, Inc., 775 F. Supp. 2d 900, 915 (S.D. W.Va. 2011) (citing to Scalia plurality opinion in passing for the proposition that the statutory definition of navigable waters has been “further refined” by the Supreme Court to cover “only relatively permanent, standing or flowing bodies of water”). See also *Ohio Valley Environmental Coalition, Inc. v. Coal-Mac, Inc.*, 2011 WL 2457691 (S.D. W.Va. June 16, 2011) (deciding various motions), and *Ohio Valley Environmental Coalition, Inc. v. Independence Coal Co., Inc.*, 2011 WL 1984523 (S.D. W.Va. May 20, 2011) (denying defendants’ motion for summary judgment).

Rapisardi v. New Jersey Dep’t of Environmental Protection, 273 F. App’x 182, 183 (3d Cir. 2008) (per curiam) (rejecting *pro se* plaintiff’s claim that *Rapanos* opinion had application to bases for prior state court judgments entered against him for violation of state environmental laws), *aff’g Rapisardi v. New Jersey Dep’t of Environmental Protection*, 2007 WL 2306732 (D. N.J. Aug. 7, 2007).

Resource Investments, Inc. v. United States, 97 Fed. Cl. 545, 547 n.2 (2011) (citing Scalia plurality opinion for proposition that, in some instances, navigable waters for purposes of CWA § 404 can include wetlands); *Resource Investments, Inc. v. United States*,

85 Fed. Cl. 447, 464 (2009) (describing *Rapanos* as holding “that more than a remote hydrological connection to navigable waters is required for Corps’ jurisdiction”).

Rockstead v. City of Crystal Lake, 486 F.3d 963, 966 (7th Cir. 2007) (citing *Rapanos* plurality in support of proposition that there has been a “rise of severe legal restrictions (especially those imposed by the [CWA] on the use that a property owner may make of land declared to be wetlands”), *aff’g Rockstead v. City of Crystal Lake*, 431 F. Supp. 2d 804 (N.D. Ill. 2005).

Schmidt v. U.S. Army Corps of Engineers, 2009 WL 579412, at *10 (W.D. Mich. Mar. 5, 2009) (citing *Cundiff’s* discussion of *Rapanos* for proposition that “[t]here remains much confusion among the federal courts regarding the meaning of the term “navigable waters,” but noting that plaintiff in the case did not dispute the fact that his proposed project would involve filling a navigable water of the United States within the meaning of the CWA).

Sierra Club v. U.S. Army Corps of Engineers, 464 F. Supp. 2d 1171, 1177, 1197 n.38, 1201 n.43 (M.D. Fla. 2006) (observing that “it appears” that, under *Rapanos*, the definition of jurisdictional wetlands “would be less expansive than the current one, not more so”), *aff’d by* 508 F.3d 1332 (11th Cir. 2007) (per curiam).

Smallwood v. U.S. Army Corps of Engineers, 2009 WL 196228, at *7 (D. Hawaii Jan. 26, 2009) (citing to Scalia plurality opinion for proposition that the term “water of the United States” includes “channels containing permanent flow” but does not normally include “ditches, channels, and conduits carrying an intermittent flow of water”), *aff’d by* 423 F. App’x 684 (9th Cir. 2011).

Smith v. The Abandoned Vessel, 610 F. Supp. 2d 739, 749 (S.D. Tex. 2009) (findings of fact and conclusions of law) (citing to Scalia plurality opinion for meaning of “navigable waters”).

Stephens v. Koch Foods, LLC, 667 F. Supp. 2d 768, 782 (E.D. Tenn. 2009) (in deciding cross-motions for summary judgment on CWA citizen suit claim, citing to language in Scalia plurality opinion that bears on whether a sewer system can constitute a water of the United States or a point source, but declining to resolve this question in the context of a standing analysis).

Teamsters Local 617 Pension and Welfare Funds v. Apollo Group, Inc., 2012 WL 1094454, at *6 (D. Ariz. Mar. 30, 2012) (characterizing Ninth Circuit’s evolving case law as to which *Rapanos* standard applies as illustrating the kind of “change in controlling law absent an outright reversal” that could support relief under a motion for reconsideration made to a district court).

United States v. Acquest Wehrle LLC, 2010 WL 1708528, at *1 (W.D.N.Y. Apr. 27, 2010) (magistrate judge decision and order) (noting that Kennedy significant nexus test provides “the standard for legal determination of whether a waterway or related system is subject to the [CWA],” in context of ruling on government’s motion to enter

and inspect in a CWA civil enforcement action). *See also United States v. Acquest Wehrle LLC*, 2010 WL 1779389 (W.D.N.Y. Apr. 30, 2010) (denying defendant’s application for stay of enforcement of magistrate judge order); *United States v. Acquest Wehrle LLC*, 2010 WL 3788050 (W.D.N.Y. Sept. 23, 2010) (magistrate judge decision and order) (ruling on various pretrial matters).

United States v. Atlantic States Cast Iron Pipe Co., 2007 WL 2282514, at *29 n.30, *33 n.41 (D. N.J. Aug. 2, 2007) (appearing to cite *Rapanos* plurality opinion as providing the holding of the case as to what are included as “waters of the United States”). *See also United States v. Atlantic States Cast Iron Pipe Co.*, 627 F. Supp. 2d 180 (D. N.J. 2009) (memorandum opinion pertaining to sentencing of defendants); *United States v. Atlantic States Cast Iron Pipe Co.*, 612 F. Supp. 2d 453 (D. N.J. 2009) (memorandum opinion pertaining to Crime Victims’ Rights Act); *United States v. Atlantic States Cast Iron Pipe Co.*, 2005 WL 2138701 (D. N.J. Aug. 31, 2005) (denying defendants’ motion to dismiss).

United States v. House of Raeford Farms, Inc., 2010 WL 2199675, at *3 & n.5 (M.D.N.C. May 27, 2010) (noting that *Rapanos* ruling does not change the conclusion that under the CWA, “Congress clearly intended to regulate pollutant discharges into sewer systems and had the constitutional authority to do so”).

United States v. Parker, 2007 WL 1467546, at *2 (N.D. Ohio May 18, 2007) (denying defendants’ motion to vacate a post-trial, 1995 consent decree involving federal and state claims for injury to wetlands because, *inter alia*, despite *Rapanos* ruling clarifying the federal definition of waters of the United States and its potential impact on part of the legal basis for the consent decree, that ruling had no effect on state law water pollution claims that also formed part of the basis for the consent decree).

United States v. Rodriguez, 2011 WL 1458231, at *1 (D. Idaho Apr. 15, 2011) (passing reference to *Rapanos* opinion, without discussion, in context of denying defendant’s motion to dismiss indictment under the CWA alleging fill of creek and wetlands without a permit).

West Virginia Highlands Conservancy, Inc. v. Huffman, 625 F.3d 159, 165 (4th Cir. 2010) (citing to *Rapanos* plurality for the proposition that the CWA is a “broadly worded statute”), *aff’g West Virginia Highlands Conservancy, Inc. v. Huffman*, 588 F. Supp. 2d 678 (N.D. W.Va. 2009).

White Tanks Concerned Citizens, Inc. v. Strock, 563 F.3d 1033, 1035, 1037 (9th Cir. 2009) (noting that while “[t]he scope of the Corps’ jurisdiction under the Clean Water Act is not entirely clear” after *Rapanos*, no such question is presently before the court).

Wochos v. Smith, 2010 WL 2035365, at *3 (W.D. Ark. Apr. 15, 2010) (magistrate report & recommendation) (recommending denial of plaintiff’s motion for summary judgment on question of whether Kelly Creek is a “navigable water” under either *Rapanos* test for purposes of CWA citizen suit claim, given conflicting record evidence on

whether the water is intermittent), *adopted by Wochos v. Smith*, 2010 WL 2035362 (W.D. Ark. May 20, 2010). *See also Wochos v. Smith*, 2008 WL 4183393 (W.D. Ark. Sept. 11, 2008) (denying plaintiff's motion for preliminary injunction).

U.S. ENVIRONMENTAL PROTECTION AGENCY (ADMINISTRATIVE RULINGS)

In the wake of the *Rapanos* ruling, the U.S. EPA Environmental Appeals Board (EAB) and EPA administrative law judges have been presented with questions of CWA jurisdiction. Following is a list of relevant decisions to date. A detailed treatment of these administrative rulings is beyond the scope of this compendium.

In re Smith Farm Enterprises, LLC, CWA Appeal No. 08-02, 2011 WL 946993 (E.A.B. Mar. 16, 2011) 15 E.A.D. (concluding that there is CWA jurisdiction if either *Rapanos* test is satisfied and finding that wetlands at issue are jurisdictional), *vacating and superseding In re Smith Farm Enterprises, LLC*, 2010 WL 4001418, CWA Appeal No. 08-02 (E.A.B. Sept. 30, 2010) 15 E.A.D., *and aff'g In re Smith Farm Enterprises, LLC*, No. CWA-03-2001-0022, 2008 WL 713741 (E.P.A. Mar. 7, 2008) (contains detailed discussion of evidence supporting jurisdictional determination). *Petition for review filed in U.S. Court of Appeals for the Fourth Circuit*, No. 11-1355 (Apr. 11, 2011).

In re Fulton Fuel Co. CWA Appeal No. 10-03, 2010 WL 3885544 (E.A.B. Sept. 9, 2010) (rejecting argument that appellant has a strong probability of establishing a meritorious defense, as required to set aside default, in his challenge to EPA jurisdiction over a small seasonal stream pursuant to *Rapanos*).

In re Vico Construction Corporation & Amelia Venture Properties, LLC, No. CWA-03-2001-0021, 2008 WL 4545097 (E.P.A. Sept. 8, 2008) (finding jurisdiction over wetlands under either *Rapanos* test; contains detailed discussion of evidence supporting jurisdictional determination).

In re Hesper, No. CWA-05-2006-0002, 2007 WL 1219960 & 2192943 (E.P.A. Feb. 23, 2007) (denying respondents' motion to dismiss for lack of jurisdiction, post-*Rapanos*). *See also In re Hesper*, No. CWA-05-2006-0002, 2008 WL 4635959 (E.P.A. Oct. 8, 2008) (denying respondents' motion for award of fees and costs); ***In re Hesper***, No. CWA-05-2006-0002, 2007 WL 1219959 & 2192942 (E.P.A. Feb. 23, 2007) (denying respondents' motion for additional discovery on post-*Rapanos* jurisdictional issues).

ENDNOTES

¹ See, e.g., Internal EPA Memorandum re “OECA’s Comments on the June 6, 2007 Memo, Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in *Rapanos v. United States* & *Carabell v. United States*,” from EPA Assistant Administrator for Enforcement and Compliance Assurance Granta Nakayama to EPA Assistant Administrator for Water Benjamin Grumbles, Mar. 4, 2008 (concluding that “a significant portion of the CWA enforcement docket has been adversely affected” by the *Rapanos* decision and/or agency guidance interpreting it); Charles Duhigg and Janet Roberts, “Rulings Restrict Clean Water Act, Foiling EPA,” *New York Times*, Feb. 28, 2010 (part of the *Times*’ “Toxic Waters” series about the worsening pollution in American waters and regulators’ responses); Paul Quinlan, “Utah permit showdown a case study in Clean Water Act Confusion,” *E&E Greenwire*, Apr. 10, 2012 (citing development dispute involving dry washes near St. George, Utah as example of how confusion over Clean Water Act jurisdiction has proven especially thorny in the arid West, “where countless streams can alternate between states of torrential flows and months-long dry spells”).

² For example, a recent study identified several aquatic resource types that, in certain circumstances, have been left vulnerable in the wake of the *Rapanos* decision. These include geographically isolated wetlands like prairie potholes and playa lakes, as well as ephemeral and intermittent streams. The study considered an aquatic resource “vulnerable” if it fell outside the protection of the Clean Water Act. See Environmental Law Institute, *America’s Vulnerable Waters: Assessing the Nation’s Portfolio of Vulnerable Aquatic Resources since Rapanos v. United States* i, ii-iv, vii-viii (2011). See also, e.g., Earthjustice, Environment America, Clean Water Action, National Wildlife Federation, Natural Resources Defense Council, Sierra Club, and Southern Environmental Law Center, *Courting Disaster: How the Supreme Court Has Broken the Clean Water Act and Why Congress Must Fix It* (Apr. 2009) (collecting over thirty case studies on post-SWANCC implementation of the Clean Water Act that in the view of the authors has left waters unprotected or under-protected by federal law).

³ What we think of as the Clean Water Act was a set of 1972 amendments to the existing Federal Water Pollution Control Act. See Pub. L. 92-500, 86 Stat. 816 (Oct. 18, 1972). The name “Clean Water Act” was actually added by the 1977 amendments. Pub. L. 95-217, § 1 (Dec. 27, 1977).

⁴ See, e.g., Robin Kundis Craig, *The Clean Water Act and the Constitution: Legal Structure and the Public’s Right to a Clean and Healthy Environment* 26 (Environmental Law Institute 2004) (1972 amendments “represented a sea change in U.S. involvement in comprehensive water quality regulation”).

⁵ 33 U.S.C. § 1251(a), CWA § 101(a).

⁶ H.R. Rep. No. 92-911, p. 76 (1972). The concepts of maintaining water’s chemical and physical integrity tends to be well understood. However, the notion of “biological integrity” has proven more difficult to articulate. As a result, EPA has, over the years, engaged in what it describes as a “quest for a practical definition of biological integrity.” Today, “biological integrity” is defined by EPA as “the capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of the natural habitat of the region.” See U.S. EPA, “Biological Indicators of Watershed Health/Biological Integrity,” available at <http://www.epa.gov/bioiweb1/html/biointeg.html>.

⁷ *Milwaukee v. Illinois*, 451 U.S. 304, 318 (1981). Then-Justice Rehnquist’s opinion in *Milwaukee* surveys the legislative history of the Clean Water Act and leaves no doubt about Congress’ intent to achieve broad-reaching reform. “The ‘major’ purpose of the Amendments was ‘to establish a *comprehensive* long-range policy for the elimination of water pollution.” *Id.* (citations omitted) (emphasis in original). “No Congressman’s remarks on the legislation were complete without reference to the ‘comprehensive’ nature of the Amendments. . . . Senator Randolph, Chairman of the responsible Committee in the Senate, stated: ‘It is perhaps the most comprehensive legislation ever developed in its field. It is perhaps the most comprehensive legislation that the Congress of the United States has ever developed in this particular field

of the environment.” *Id.* (citations omitted). “The 1972 Amendments to the Federal Water Pollution Control Act were not merely another law ‘touching interstate waters Rather, the Amendments were viewed by Congress as a ‘total restructuring’ and ‘complete rewriting’ of the existing water pollution legislation.” *Id.* at 317 (citations omitted).

⁸ *International Paper Co. v. Ouellette*, 479 U.S. 481, 492 (1987).

⁹ 33 U.S.C. § 1311(a), CWA § 301(a).

¹⁰ 33 U.S.C. § 1362(16), CWA § 502(16).

¹¹ 33 U.S.C. § 1362(12)(A), CWA § 502(12)(A). The law also covers the addition of pollutants to the waters of the contiguous zone or the ocean from point sources other than vessels or other floating craft. 33 U.S.C. § 1362(12)(B), CWA § 502(12)(B).

¹² 33 U.S.C. § 1362(6), CWA § 502(6). There are several limited exceptions to the meaning of the term “pollutant” that deal with vessels and certain oil and gas production operations. *Id.*

¹³ 33 U.S.C. § 1362(14), CWA § 502(14). However, agricultural stormwater discharges and return flows from irrigated agriculture are not “point sources.” *Id.*

¹⁴ See 33 U.S.C. § 1342, CWA § 402. See also EPA’s web page describing the NPDES program at <http://cfpub.epa.gov/npdes/>. Permits can be issued to individual applicants, or, for certain classes of activities, applicants can come under the terms of general permits.

¹⁵ See EPA’s resources pertaining to “NPDES Permit Program Basics,” available at http://cfpub.epa.gov/npdes/home.cfm?program_id=45.

¹⁶ 33 U.S.C. § 1342(b), CWA § 402(b). For current state-by-state program status, see <http://cfpub.epa.gov/npdes/statstats.cfm>.

¹⁷ 33 U.S.C. § 1344, CWA § 404. The Corps’ online resources describing its permitting activities and discussing jurisdictional issues can be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/juris_info.aspx. EPA has an oversight and consultative role in the 404 program, may veto permits, and may take enforcement action. Section 404 permits can be individual or general. General permits are used for categories of activities that are similar in nature, will cause minimal adverse environmental effects when performed separately, and will have minimal cumulative adverse effects on the environment. In early 2012, the Corps reissued, with some modifications, 48 of 49 existing nationwide permits (NWP), general conditions, and definitions. The Corps also issued two new NWPs, three new general conditions, and three new definitions. The new and reissued permits had an effective date of March 19, 2012, and are valid for five years. See *Reissuance of Nationwide Permits*, 77 Fed. Reg. 10184 (Feb. 21, 2012).

¹⁸ 33 U.S.C. § 1344(g), CWA § 404(g).

¹⁹ See Craig, *supra* note 4, at 34. See also EPA’s web page on “State or Tribal Assumption of the Section 404 Permit Program,” available at <http://www.epa.gov/owow/wetlands/facts/fact23.html>.

²⁰ See 33 U.S.C. § 1341(a), CWA § 401(a).

²¹ 33 U.S.C. § 1313(c)(2), CWA § 303(c)(2).

²² See 33 U.S.C. § 1313, CWA § 303.

²³ 33 U.S.C. § 1313(d), CWA § 303(d).

²⁴ Oliver A. Houck, *The Clean Water Act TMDL Program: Law, Policy, and Implementation* 106 (Environmental Law Institute 2d ed. 2002). Specifically, the Act requires that a TMDL for a pollutant “be established at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.” 33 U.S.C. § 1313(d)(1)(C), CWA § 303(d)(1)(C).

²⁵ *E.g.*, 33 U.S.C. § 1313(d)(2), CWA § 303(d)(2). *See also* EPA’s web page describing the TMDL program at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/index.cfm>.

²⁶ Another area of controversy includes regulation of oil spills in the “navigable waters of the United States.” *See, e.g.*, 33 U.S.C. § 1321, CWA § 311 (oil and hazardous substance liability). *See also* 33 U.S.C. §§ 2701-61, OPA §§ 1001-7001 (Oil Pollution Act, which pertains to “navigable waters”).

²⁷ *See, e.g.*, 33 U.S.C. § 1251(a), CWA § 101(a) (referencing national clean water goals and policies in the context of *navigable waters*); 33 U.S.C. § 1313(c)(2)(a), CWA § 303(c)(2)(a) (discussing requirement of water quality standards for *navigable waters*); 33 U.S.C. § 1344(a), CWA § 404(a) (providing for issuance of permits for the discharge of dredged or fill material into *navigable waters*); and 33 U.S.C. § 1362(12), CWA § 502(12) (defining “discharge of a pollutant” as an addition of any pollutant to *navigable waters*) (emphases added).

²⁸ 33 U.S.C. § 1362(7), CWA § 502(7).

²⁹ U.S. Const. Art. 1 § 8 cl. 3. *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824); *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1871).

³⁰ Section 13 of the Rivers and Harbors Act of 1899, 30 Stat. 1121, 1152, codified at 33 U.S.C. § 407.

³¹ *E.g.*, Pub. L. No. 80-845, § 10, 62 Stat. 1155, 1161 (June 30, 1948).

³² Pub. L. No. 87-88, § 8(a), 75 Stat. 208 (June 20, 1961).

³³ *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 133 (1985). For more on the historical evolution of navigability, and the term “navigable waters,” *see generally* Donna Downing *et al.*, “Navigating through Clean Water Act Jurisdiction: A Legal Review,” 23(3) *Wetlands* 527 (2003).

³⁴ 33 C.F.R. § 328.3(a) (Corps); 40 C.F.R. § 230.3(s) (EPA).

³⁵ *See, e.g.*, *The Daniel Ball*, 77 U.S. (10 Wall.) 557 (1870) (defining “navigable in fact”); *Economy Light Co. v. United States*, 256 U.S. 113 (1921) (holding that when once found to be navigable, a waterway remains so); *United States v. Appalachian Electric Power Co.*, 311 U.S. 377, 407-09 (1940) (holding that determination of a waterway’s susceptibility to use in commerce includes considering the effects of reasonable improvements). *See also* 33 C.F.R. § 328.3(a)(1) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(1) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). *See also* William W. Sapp, *et al.*, “From the Fields of Runnymede to the Waters of the United States: A Historical Review of the Clean Water Act and the Term ‘Navigable Waters,’” 36 *Environmental Law Reporter* 10190, 10191 (2006) (describing “present use,” or “navigable-in-fact” waters; susceptible use waters; and historical waters); 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 *Environmental Law Reporter* 10187, 10191-92 (2004) (discussing usage of the term “traditional navigable waters”). The latest word from the U.S. Supreme Court on the scope of navigability under federal law came in February 2012, when the Court handed down its ruling in *PPL Montana, LLC v. Montana*, 565 U.S. ___, 132 S.Ct. 1215 (2012). There, the Court was called upon to determine “whether discrete, identifiable segments of [certain] rivers in Montana were non-navigable, as federal law defines that concept for purposes of determining whether the State acquired title to the riverbeds underlying those segments, when the State entered the Union in 1889.” *Id.* at 1222. Throughout the Court’s unanimous opinion—which rejected the Montana Supreme Court’s broad articulation of navigability in this context—the Court distinguished between a navigability analysis undertaken to determine state title to water beds under the so-called “equal footing doctrine” at issue in *PPL Montana*, on the one hand, and an analysis undertaken to assess federal regulatory authority under statutes such as the Clean Water Act, on the other hand. *E.g., id.* at 1228-29, 1231-32. It remains to be seen what, if any, impact the *PPL Montana* decision will have on assessments of traditional navigable waters under the Clean Water Act.

³⁶ *See, e.g.*, Bill Sapp and Katie Ottenweller, “Back to the Past: Using the Historic Use Test to Protect Wetlands,” *National Wetlands Newsletter* 19-21, Sept.-Oct 2011.

³⁷ In 2010, for example, EPA Administrator Lisa Jackson designated the largely concrete-lined Los Angeles River as a traditional navigable water. In reaching this decision, “EPA considered factors beyond

whether the river's flow and depth can support navigation from its origins." These included "recreational and commercial opportunities, public access, susceptibility to restoration, and the presence of ongoing restoration and educational projects." See Louis Sahagun, "L.A.'s River Clears Hurdle," *Los Angeles Times*, July 8, 2010; U.S. EPA Region IX, *Special Case Evaluation Regarding Status of the Los Angeles River, California, as a Traditional Navigable Water*, July 1, 2010 (mainstem of the L.A. River a traditional navigable water). See also, e.g., *National Association of Home Builders v. Environmental Protection Agency*, ___ F.3d ___, 2011 WL 6118589 (D.C. Cir. Dec 9, 2011) (rejecting challenge to determination by EPA and the Corps that two reaches of the intermittently flowing Santa Cruz River in Arizona are traditional navigable waters).

³⁸ Contact information for all Corps district offices is available at <http://www.usace.army.mil/Locations.aspx>.

³⁹ See 33 C.F.R. § 328.3(a)(2) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(2) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). See also, e.g., *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 129 (1985) (upholding Corps regulation that covers "all wetlands adjacent to navigable or interstate waters and their tributaries") (emphasis added); and *infra* note 110. Also, see generally U.S. EPA and U.S. Army Corps of Engineers, *WOUS Interstate Waters Attachment: Interstate Waters Are 'Waters of the United States' Under Section (a)(2) of the Agencies' Regulations* 17, May 2011 (legal memorandum that reviews authorities and concludes that, "based on the language of the [CWA], the statutory history, the legislative history, and the caselaw, the agencies' longstanding interpretation of 'navigable waters' to include interstate waters is reasonable and entitled to deference"), available at http://www.epa.gov/owow/wetlands/pdf/wous_interstate_waters.pdf.

⁴⁰ See 33 C.F.R. § 328.3(a)(7), (a)(1), (b) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(7), (s)(1), (b) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). See also, e.g., *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 139 (1985) (holding that Corps acted reasonably in interpreting Clean Water Act to cover wetlands adjacent to traditional navigable waters); *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment) (reaffirming holding of *Riverside Bayview*).

⁴¹ 474 U.S. 121 (1985).

⁴² *Id.* at 139.

⁴³ *Id.*

⁴⁴ See *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment) (discussing *Riverside Bayview*).

⁴⁵ *Riverside Bayview*, 474 U.S. at 132.

⁴⁶ *Id.*

⁴⁷ The Court wrote: "[i]f it is reasonable for the Corps to conclude that in the majority of cases, adjacent wetlands have significant effects on water quality and the aquatic ecosystem, its definition can stand. That the definition may include some wetlands that are not significantly intertwined with the ecosystem of adjacent waterways is of little moment, for where it appears that a wetland covered by the Corps' definition is in fact lacking in importance to the aquatic environment—or where its importance is outweighed by other values—the Corps may always allow development of the wetland for other uses simply by issuing a permit." *Id.* at 135 n.9.

⁴⁸ *Id.* at 134.

⁴⁹ *Id.* at 133.

⁵⁰ *Id.*

⁵¹ 531 U.S. 159 (2001).

⁵² *Id.* at 162, 171-72. *SWANCC* struck down the Corps' Migratory Bird Rule, interpreting 33 C.F.R. § 328.3(a)(3), 51 Fed. Reg. 41217 (1986). *SWANCC*, 531 U.S. at 174. For two recent perspectives on the notion of waters being "isolated," see, e.g., Loren M. Smith, Ned H. Euliss Jr., and David A. Haukos, "Are

Isolated Wetlands Isolated?” *National Wetlands Newsletter* 26-27, Sept.-Oct. 2011 (offering “well-documented examples from the scientific literature on some of the ecosystem services provided by isolated wetlands to society and other ecosystems”); James Murphy, “Protecting ‘Isolated’ Waters in a Post-*Rapanos* World,” *National Wetlands Newsletter* 22-25, Sept.-Oct. 2011 (calling for agencies to craft a rule allowing for aggregation of geographically isolated waters based on function, and relying on existing science).

⁵³ See 531 U.S. at 172.

⁵⁴ *Id.*

⁵⁵ *Id.* at 168, 171, and 167.

⁵⁶ *Id.* at 192 (John Paul Stevens, J., dissenting).

⁵⁷ 547 U.S. 715 (2006).

⁵⁸ *Id.* at 759 (Kennedy, J., concurring in the judgment).

⁵⁹ The Supreme Court in *Rapanos* had consolidated two wetlands cases decided by the U.S. Court of Appeals for the Sixth Circuit: *United States v. Rapanos*, 376 F.3d 629 (6th Cir. 2004), and *Carabell v. U.S. Army Corps of Engineers*, 391 F.3d 704 (6th Cir. 2004).

⁶⁰ 547 U.S. at 762-64 (Kennedy, J., concurring in the judgment) (the *Rapanos* case).

⁶¹ *Id.* at 764-65 (the *Carabell* case).

⁶² See *id.* at 718-57 (Scalia, J., plurality, joined by Chief Justice John Roberts and Justices Clarence Thomas and Samuel Alito); and *id.* at 758-87 (Kennedy, J., concurring in the judgment).

⁶³ *Id.* at 787-810 (Stevens, J., dissenting, joined by Justices David Souter, Ruth Bader Ginsburg, and Stephen Breyer). Following the Supreme Court’s decision, the *Rapanos* defendants eventually settled with the government, entering into a consent decree. They agreed, among other things, to pay a civil penalty of \$150,000, to construct a mitigation project of at least 100 acres, and to conserve an additional 134 acres of land. See *Rapanos v. United States*, No. 2:94-cv-70788 at 8, 9, 10 (E.D. Mich., Mar. 18, 2009) (consent decree). The *Carabell* case was remanded by the court of appeals to the district court, and by the district court to the Corps for further proceedings consistent with the Supreme Court’s decision. See *Carabell v. U.S. Army Corps of Engineers*, 217 F. App’x 431 (6th Cir. 2007) (remand order); *Carabell v. U.S. Army Corps of Engineers*, No. 2:01-cv-72797 (E.D. Mich. Mar. 6, 2007) (remand order). The district court case was subsequently closed.

⁶⁴ *Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring in the judgment).

⁶⁵ *Id.* at 742 (Scalia, J, plurality).

⁶⁶ *Id.* at 733 & n.5. See also *infra* note 122 and accompanying text.

⁶⁷ *Id.* at 732-33.

⁶⁸ *Id.* at 740-42.

⁶⁹ *Id.* at 776 (Kennedy, J., concurring in the judgment). See also *id.* at 768-75 (rejecting the plurality requirements of relatively permanent flow and continuous surface connection).

⁷⁰ The Supreme Court has referenced its *Rapanos* decision five times. Most recently, in *Sackett v. Environmental Protection Agency*, 566 U.S. ___, 132 S.Ct. 1367, 1370, 1374 (2012), the court ruled unanimously, with two concurrences, that EPA administrative compliance orders issued under the CWA are subject to pre-enforcement judicial review pursuant to the Administrative Procedure Act to challenge federal jurisdiction. See also *PPL Montana, LLC v. Montana*, 565 U.S. ___, 132 S.Ct. 1215, 1228 (2012) (citing both *Rapanos* plurality and Kennedy concurrence for proposition that the *Daniel Ball* formulation for determining “navigability in fact” has been invoked “for purposes of assessing federal regulatory authority under the Constitution, and the application of specific federal statutes [such as the Clean Water Act]”); *Kucana v. Holder*, 558 U.S. ___, 130 S.Ct. 827, 840 (2010) (citing *Rapanos* plurality for proposition that “no law pursues its purpose at all costs, and . . . the textual limitations upon a law’s scope are no less a part of

its ‘purpose’ than its substantive authorizations”); *Exxon Shipping Co. v. Baker*, 554 U.S. 471, 508 (2008) (citing *Rapanos* plurality’s reference to the Court’s “oft-expressed skepticism towards reading the tea leaves of congressional inaction”); *Hamdan v. Rumsfeld*, 548 U.S. 557, 706 (2006) (Thomas, J., dissenting) (“Those Justices who today disregard the Commander in Chief’s wartime decisions, only 10 days ago [in the *Rapanos* decision] deferred to the judgment of the Corps of Engineers with regard to a matter much more within the competence of lawyers, upholding that agency’s wildly implausible conclusion that a storm drain is a tributary of the waters of the United States.”).

⁷¹ See *United States v. Johnson*, 467 F.3d 56 (1st Cir. 2006); *United States v. Donovan*, 661 F.3d 174 (3d Cir. 2011); *United States v. Bailey*, 571 F.3d 791 (8th Cir. 2009). These rulings are discussed in the Case Appendix to this handbook. Justice Stevens, foreseeing the confusion that was likely to arise from the Court’s divided ruling, proposed precisely this approach for interpreting the decision. *Rapanos*, 547 U.S. at 810 (Stevens, J., dissenting) (“Given that all four Justices who have joined this opinion would uphold the Corps’ jurisdiction in both of these cases—and in all other cases in which either the plurality’s or Justice Kennedy’s test is satisfied—on remand each of the judgments should be reinstated if *either* of those tests is met.”) (emphasis in original).

⁷² See *infra* note 269, at 3 (Corps/EPA December 2008 guidance) and *infra* note 272, at 2 (Corps/EPA 2011 proposed draft guidance); *Interpreting the Effect of the U.S. Supreme Court’s Recent Decision in the Joint Cases of Rapanos v. United States and Carabell v. U.S. Army Corps of Engineers on “The Waters of the United States.” Hearing Before the Subcomm. on Fish, Wildlife, and Water of the S. Comm. on Environment and Public Works*, 109th Cong. 16 (2006) (statement of John C. Cruden, then-Deputy Assistant Attorney General, Environment and Natural Resources Division, U.S. Department of Justice) (reporting that the Department has argued to courts that a wetland is jurisdictional under the Clean Water Act if either the *Rapanos* Scalia plurality test or Justice Kennedy’s significant nexus test is met in a particular fact situation).

⁷³ See *Precon Development Corp., Inc. v. U.S. Army Corps of Engineers*, 633 F.3d 278 (4th Cir. 2011); *United States v. Gerke Excavating, Inc.*, 464 F.3d 723 (7th Cir. 2006) (per curiam); *Northern California River Watch v. City of Healdsburg*, 496 F.3d 993 (9th Cir. 2007), *withdrawing and superseding on denial of reh’g*, 457 F.3d 1023 (9th Cir. 2006); *Northern California River Watch v. Wilcox*, 633 F.3d 766 (9th Cir. 2011), *amending and superseding earlier opinion at* 620 F.3d 1075 (9th Cir. 2010). These rulings are discussed in the Case Appendix to this handbook.

⁷⁴ See *United States v. Robison*, 505 F.3d 1208 (11th Cir. 2007). This ruling is discussed in the Case Appendix to this handbook.

⁷⁵ See *United States v. Lucas*, 516 F.3d 316 (5th Cir. 2008); *United States v. Cundiff*, 555 F.3d 200 (6th Cir. 2009). These rulings are discussed in the Case Appendix to this handbook.

⁷⁶ See, e.g., *Rapanos*, 547 U.S. at 810 n.14 (Stevens, J., dissenting) (“I assume that Justice Kennedy’s approach will be controlling in most cases because it treats more of the Nation’s waters as within the Corps’ jurisdiction, but in the unlikely event that the plurality’s test is met but Justice Kennedy’s is not, courts should also uphold the Corps’ jurisdiction.”).

⁷⁷ For example, in Justice Kennedy’s discussion of the Corps’ existing standard for tributaries (*i.e.*, a water that feeds into a traditional navigable water and has an “ordinary high-water mark”), he notes that this standard “may well provide a reasonable measure of whether specific minor tributaries bear a sufficient nexus with other regulated waters to constitute ‘navigable waters’ under the Act.” *Id.* at 781 (Kennedy, J., concurring in the judgment). This comment, though dictum, suggests that Justice Kennedy might well subject streams to the same nexus analysis as wetlands. Furthermore, Justice Kennedy characterizes the *SWANCC* decision as having held that to constitute “navigable waters” under the Clean Water Act, “a water or wetland must possess a ‘significant nexus’ to waters that are or were navigable in fact or that could reasonably be so made.” *Id.* at 759 (citation omitted) (emphasis added). He also notes that the Corps can reasonably interpret the Act “to cover the paths of . . . impermanent streams.” *Id.* at 770. See also, e.g., *United States v. Robison*, 505 F.3d 1208, 1223-24 (11th Cir. 2007) (determining that significant nexus test analysis applied to question of Clean Water Act jurisdiction over stream). *But see San Francisco Baykeeper v. Cargill Salt Division*, 481 F.3d 700 (9th Cir. 2007) (declining to find that a non-wetland containment pond was jurisdictional, and asserting that in *Rapanos*, “[n]o Justice, even in dictum, addressed the question

whether all waterbodies with a significant nexus to navigable waters are covered by the Act”). Disagreement over the application of the significant nexus test to streams persists. *E.g., compare Environmental Protection Information Center v. Pacific Lumber Company*, 469 F. Supp. 2d 803, 823 (N.D. Cal. 2007) (test applies to tributaries), with *Benjamin v. Douglas Ridge Rifle Club*, 673 F. Supp. 2d 1210, 1215 n.2 (D. Or. 2009) (no application to tributaries). See also *United States v. Vierstra*, 803 F. Supp. 2d 1166, 1171-72 (D. Idaho 2011) (magistrate judge notes that “[i]t is an open question as to whether Justice Kennedy’s concurrence applies in the tributary context,” then concludes that the test does so apply). To date, the better-reasoned view appears to be that the significant nexus test *may* properly be applied to streams.

⁷⁸ See *Rapanos v. United States*, 547 U.S. 715, 779 (2006) (Kennedy, J., concurring in the judgment). Remember, however, that a finding of significant nexus is not *always* required to prove jurisdiction. Alternative approaches to demonstrating Clean Water Act jurisdiction are discussed in Chapter Four of this handbook.

⁷⁹ Justice Kennedy articulates the significant nexus test in the context of wetlands. He writes that “wetlands possess the requisite nexus, and thus come within the statutory phrase ‘navigable waters,’ if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’” *Id.* at 780 (Kennedy, J., concurring in the judgment).

⁸⁰ *E.g., Hamman v. American Motors Corp.*, 345 N.W.2d 699, 700-01 (Mich. App. 1984) (evaluating a defendant’s claim of “inconvenient forum” depends on balancing of “various factors,” and plaintiff’s choice of forum is entitled to greater weight when there is a “significant nexus” between the litigation and plaintiff’s chosen forum); *Reed & Reed, Inc. v. Weeks Marine, Inc.*, 335 F. Supp. 2d 110, 121 (D. Maine 2004) (admiralty law is applied to a tort claim where the alleged wrong bears a “significant relationship or nexus” to traditional maritime activity); *In re Lencoke Trucking, Inc.*, 99 B.R. 200, 201 (W.D.N.Y. 1989) (a case is “related” to Title 11 bankruptcy proceedings, and thus subject to a Bankruptcy Court’s jurisdiction, where there is “a significant connection or nexus” between the case and the bankruptcy proceeding; the scope of jurisdiction depends on whether the outcome of the case “could conceivably have any effect” upon the bankrupt estate); *In re Delphi Corp. Securities, Derivative and “ERISA” Litigation*, 403 F. Supp. 2d 1358 (Jud. Pan. Mult. Lit. 2005) (court found in establishing new Multi-District Litigation docket that Eastern District of Michigan had a “significant nexus” to the litigation, based on consideration of several factors); *Bass v. SMG, Inc.*, 765 N.E.2d 1079, 1089 (Ill. App. 2002) (tort claims with a “significant relationship or nexus” with a contract containing a broad arbitration clause are arbitrable; courts must examine the specific links between the claims and the subject matter of the contract); *Norton v. Liddel*, 620 F.2d 1375, 1380 (10th Cir. 1980) (to maintain civil rights claim against a private defendant who allegedly conspired with an absolutely immune state official, the plaintiff must prove existence of “a significant nexus or entanglement” between the state official and the private party, in relation to the steps taken by each to fulfill the objects of their conspiracy; this must be determined “of necessity, on a case-to-case basis”); *Reiss v. Societe Centrale Du Groupe Des Assurances Nationales*, 235 F.3d 738, 746-47 (2nd Cir. 2000) (there is jurisdiction over a foreign state in federal court under an exception to the Foreign Sovereign Immunities Act where a “significant nexus” exists between commercial activity carried on in the United States by the foreign state and a plaintiff’s legal claim); *Hill v. Virginia*, 438 S.E.2d 296, 300 (Va. App. 1993) (for evidence of a prior offense to be admitted to prove intent in a new proceeding, a “significant nexus” must exist between the prior offense and the intent required to prove the charge at hand; this nexus must consist of more than a basic recitation of the fact that intent is an element of the crime); *Feldman v. Kohler Co.*, 918 S.W.2d 615, 620, 623 (Tex. App. 1996) (contractor can claim immunity from state tort law under government contractor defense where a “significant nexus” exists between a product design configuration and the policy reasons behind the federal government’s approval of that design configuration); and *Tucker v. State*, 411 A.2d 603, 604-05 (Del. 1980) (where police continued to interrogate defendant after defendant had declined to make a statement, and eventually obtained incriminating statements, a “significant and unacceptable nexus” existed between continued questioning and defendant’s statements that rendered their admission a violation of the Fifth Amendment right against self incrimination). Over the years, courts have also assessed factual connections using similar terminology, such as “substantial nexus” and “significant” or “substantial” “relationship.” The common

feature in these assessments tends to be a case-by-case, fact-specific analysis of a particular relationship, with the aim of determining the relationship’s legal importance.

⁸¹ *But see, e.g., Precon Development Corp., Inc. v. U.S. Army Corps of Engineers*, 633 F.3d 278, 294 (4th Cir. 2011) (indicating that Justice Kennedy in *Rapanos* “clearly intended for some evidence of both a nexus and its significance to be presented”).

⁸² *Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring in the judgment).

⁸³ *See id.* at 779 (citation omitted).

⁸⁴ *Id.*, quoting 33 U.S.C. § 1251(a), CWA § 101(a).

⁸⁵ H.R. Rep. No. 911, 92d Cong., 2d Sess. 76 (1972).

⁸⁶ Justice Kennedy emphasizes the “[i]mportant public interests” that are served by “the Clean Water Act in general and by the protection of wetlands in particular.” *Rapanos*, 547 U.S. at 777 (Kennedy, J., concurring in the judgment). He then cites the example of nutrient-rich runoff from the Mississippi River having created a vast hypoxic, or oxygen-depleted, “dead zone” in the Gulf of Mexico—and notes the role played by wetlands in controlling and filtering runoff. *Id.* at 777-78.

⁸⁷ *Id.* at 779, 786.

⁸⁸ *Id.* at 780-81.

⁸⁹ *Id.* at 780-81, 787.

⁹⁰ *Id.* at 783-84. Likewise, Justice Kennedy notes that the following evidence presented by the Corps in *Carabell* includes “factors relevant to the jurisdictional inquiry,” although he cautions that the “conditional language” in the Corps’ assessments could suggest “an undue degree of speculation:”

[b]esides the effects on wildlife habitat and water quality, the [Corps District office] also noted that the project would have a major, long-term detrimental effect on wetlands, flood retention, recreation and conservation and overall ecology. . . . The proposed work would destroy/adversely impact an area that retains rainfall and forest nutrients and would replace it with a new source area for runoff pollutants. Pollutants from this area may include lawn fertilizers, herbicides, pesticides, road salt, oil, and grease. These pollutants would then runoff directly into the waterway Overall, the operation and use of the proposed activity would have a major, long term, negative impact on water quality. The cumulative impacts of numerous such projects would be major and negative as the few remaining wetlands in the area are developed. . . . [B]y eliminat[ing] the potential ability of the wetland to act as a sediment catch basin, [the proposed project] would contribute to increased runoff and . . . accretion along the drain and further downstream in Auvase Creek. . . . [Increased runoff from the site would likely cause downstream areas to] see an increase in possible flooding magnitude and frequency. *Id.* at 785-86 (citations omitted).

⁹¹ *Id.* at 783-84.

⁹² *Id.* at 784-85.

⁹³ *Id.*

⁹⁴ This is an important point, as many lower federal court decisions handed down post-*SWANCC* (but pre-*Rapanos*) focused their jurisdictional determinations on the presence or absence of a hydrologic connection. *See, e.g., United States v. Rapanos*, 376 F.3d 629, 638 (6th Cir. 2004) (observing prior to the Supreme Court’s ruling in *Rapanos* that “the majority of courts have interpreted *SWANCC* narrowly to hold 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”).

⁹⁵ 547 U.S. at 786 (Kennedy, J., concurring in the judgment) (“The Court of Appeals, considering the *Carabell* case after its *Rapanos* decision, framed the inquiry in terms of whether hydrologic connection is required to establish a significant nexus. The court held that it is not, and that much of its holding is correct.”).

⁹⁶ *Id.*

⁹⁷ *Id.* at 775. “In many cases, moreover, filling in wetlands separated from another water by a berm can mean that flood water, impurities, or runoff that would have been stored or contained in the wetlands will instead flow out to major waterways.” *Id.*

⁹⁸ *Id.* at 780.

⁹⁹ *See, e.g., id.* at 781, 786, 759-60, 779.

¹⁰⁰ In 2011, the Corps and EPA proposed in a draft guidance document to define the relevant “region” as “the watershed that drains to the nearest traditional navigable water or interstate water through a single point of entry.” *See infra* note 272, at 8, 26-27. For more on the relevant agency guidance documents, see Chapter Six of this handbook.

¹⁰¹ *See, e.g., Courting Disaster, supra* note 2, at 8-9 (discussing the importance of prairie potholes in the upper Great Plains and the current difficulty securing federal legal protection for these water features).

¹⁰² 547 U.S. at 782 (Kennedy, J., concurring in the judgment).

¹⁰³ *Id.*

¹⁰⁴ *Id.* at 780.

¹⁰⁵ *See supra* note 77.

¹⁰⁶ *See Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159, 167 (2001) (“It was the significant nexus between the wetlands and ‘navigable waters’ that informed our reading of the [Clean Water Act] in *Riverside Bayview Homes*.”).

¹⁰⁷ *See* the Case Appendix to this handbook, which canvasses lower court rulings on CWA jurisdiction issued since *Rapanos* was decided.

¹⁰⁸ For recent proposals on how to assess Clean Water Act jurisdiction in the post-*Rapanos* era, *see generally* Jon Devine, Joan Mulhern, Jan Goldman-Carter, Jim Murphy, Rebecca Hammer, and Jared Thompson, “The Intended Scope of Clean Water Act Jurisdiction,” 41 *Environmental Law Reporter* 11118 (Dec. 2011); Donna M. Downing, “Scope of ‘The Waters of the United States’ Protected by the Clean Water Act,” in *The Clean Water Act Handbook*, Mark A. Ryan, ed. (3d ed.), American Bar Association, May 2011; Lawrence R. Liebesman, Rafé Petersen, and Michael Galano, “*Rapanos v. United States*: Searching for a Significant Nexus Using Proximate Causation and Foreseeability Principles,” 40 *Environmental Law Reporter* 11242 (Dec. 2010); Margaret Strand and Lowell M. Rothschild, “What Wetlands Are Regulated? Jurisdiction of the § 404 Program,” 40 *Environmental Law Reporter* 10372 (Apr. 2010). Additionally, in 2007, the American Bar Association’s Section of Environment, Energy, and Resources (SEER) for the first time dedicated an entire issue of its member journal to a single case: *Rapanos*. This publication contains ten feature articles on *Rapanos* and its aftermath. *See generally* ABA SEER, “*Rapanos v. United States*,” 22:1 *Natural Resources & Environment* (summer 2007).

¹⁰⁹ *See, e.g., Rapanos v. United States*, 547 U.S. 715, 758 (2006) (Roberts, C.J., concurring in the judgment) (noting that “[t]he upshot” of the Corps’ failure to promulgate refined rules after the *SWANCC* decision is “another defeat for the agency”); *id.* at 812 (Breyer, J., dissenting) (concluding that “today’s opinions, taken together, call for the Army Corps of Engineers to write new regulations, and speedily so”). *But see id.* at 778 (Kennedy, J., concurring in the judgment) (“The Chief Justice suggests that if the Corps and EPA had issued new regulations after *SWANCC* they would have ‘enjoyed plenty of room to operate in developing some notion of an outer bound to the reach of their authority’ and thus could have avoided litigation of the issues we address today. . . . That would not necessarily be true under the opinion the Chief Justice has joined. New rulemaking could have averted the disagreement here only if the Corps had anticipated the unprecedented reading of the Act that the plurality advances.”) (citation omitted) (emphasis in original).

¹¹⁰ *See, e.g.,* 33 U.S.C. § 1313(a)(1), CWA § 303(a)(1) (referencing status of pre-enactment water quality standards for “interstate waters” adopted by states and submitted to the EPA administrator for approval). *See also, e.g., United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 129 (1985) (upholding Corps

regulation that covers “all wetlands adjacent to navigable or *interstate waters* and their tributaries”) (emphasis added). *See also* 33 C.F.R. § 328.3(a)(2) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(2) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). *But see generally* Richard E. Glaze Jr., “*Rapanos* Guidance III: ‘Waters’ Revisited,” 42 *Environmental Law Reporter* 10118, 10130 (2012) (characterizing the concept that interstate waters are relevant for purposes of applying the significant nexus test as “difficult to reconcile” with Supreme Court precedent).

¹¹¹ The Corps maintains lists of waters that have already been determined to be traditional navigable waters. *See supra* note 38 and accompanying text. For more on the basis of federal jurisdiction over waters influenced by the tide, see authorities at *infra* note 212.

¹¹² *See, e.g., United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 139 (1985) (holding that the Corps acted reasonably in interpreting the Clean Water Act to cover wetlands adjacent to traditional navigable waters); *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment) (reaffirming holding of *Riverside Bayview*). *See also* 33 C.F.R. § 328.3(a)(7), (c) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(7), (b) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program).

¹¹³ *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment). *See also, e.g., Benjamin v. Douglas Ridge Rifle Club*, 673 F. Supp. 2d 1210, 1217 n.4 (D. Or. 2009) (determining that a showing of significant chemical, physical, or biological connection satisfies the test; despite Justice Kennedy’s use of the word *and* in his framing of the significant nexus test in *Rapanos*, jurisdiction does not require evidence of all three).

¹¹⁴ *Rapanos v. United States*, 547 U.S. 715, 739, 742, 757 (2006) (Scalia, J., plurality). One instance in which the Scalia plurality test of “relatively permanent water + continuous surface connection” may actually be more expansive than the Kennedy significant nexus test is where a small but very long tributary establishes a surface water connection between a geographically remote wetland and downstream, traditional navigable waters. Justice Kennedy’s significant nexus test may well also lead to a finding of jurisdiction in this instance, but applying it will likely require a greater investment of money and expertise to demonstrate the significant nexus. Note, however, that this jurisdictional test is *not available in Alabama, Florida, or Georgia* as a result of the Eleventh Circuit’s ruling in *United States v. Robison*, 505 F.3d 1208 (11th Cir. 2007) (holding that the Kennedy significant nexus test alone provides the proper test for jurisdiction, post-*Rapanos*).

¹¹⁵ This test is derived from the so-called “(a)(3) waters” provision contained in the Corps regulations defining “waters of the United States.” 33 C.F.R. § 328.3(a)(3) (Corps/Section 404 permitting program). In 2011, the Corps and EPA proposed in a draft guidance document to assert jurisdiction over (a)(3) waters only on a fact-specific basis, by way of the significant nexus test. When such waters are physically proximate to jurisdictional waters, their covered status will likely be easier to demonstrate than when such waters are physically isolated from jurisdictional waters. *See, e.g., infra* note 272, at 19-20, 32-33. For more on the relevant agency guidance documents, see Chapter Six of this handbook. Although the Supreme Court has yet to decide whether the (a)(3) test remains a valid basis for asserting Clean Water Act jurisdiction, rulings of the Court cast doubt on its validity as an independent basis of jurisdiction. *See, e.g., Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159, 173-74 (2001) (noting that jurisdictional argument based on substantial effects on interstate commerce raises “significant constitutional questions”); and *Rapanos v. United States*, 547 U.S. 715, 782-83 (2006) (Kennedy, J., concurring in the judgment) (noting that significant nexus test avoids “problematic applications” of the Clean Water Act, with reference to the preceding portion of *SWANCC* majority opinion). *See also, e.g., American Petroleum Institute v. Johnson*, 541 F. Supp. 2d 165 (D.D.C. 2008) (vacating EPA regulatory definition of “navigable waters” for purposes of oil spill rule, where that definition appears to presume that Clean Water Act jurisdiction extends to the outer boundaries of Congress’s Commerce Clause power).

¹¹⁶ *See supra* note 110.

¹¹⁷ *See supra* note 111.

¹¹⁸ *Rapanos v. United States*, 547 U.S. 715, 739, 742, 757 (2006) (Scalia, J., plurality). Although the *Rapanos* plurality confronts the question of Clean Water Act jurisdiction in the context of wetlands—not streams—necessary to the result reached by the plurality is their conclusion that the category “waters of the United States” (that is, waters covered by the Clean Water Act) must include “relatively permanent, . . . continuously flowing bodies of water ‘forming geographic features’ that are described in ordinary parlance as ‘streams . . . ,’” and which are connected to traditional interstate navigable waters. *Id.* at 739, 742.

¹¹⁹ *See Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment). Justice Kennedy announces his significant nexus test in the context of determining jurisdiction over wetlands (rather than streams), but the test likely applies to streams, as well. For further discussion of the debate over whether the significant nexus test applies to tributaries, see *supra* note 77 and accompanying text. *See also supra* note 113. Note that Justice Kennedy appears to place little or no weight on whether a flow is impermanent or channeled in a man-made conveyance of some type. *See Rapanos*, 547 U.S. at 769-70 (Kennedy, J., concurring in the judgment) (discussing the occasionally “powerful and destructive” flows of the often-dry Los Angeles River, which has been “encased in concrete and steel over a length of some 50 miles”).

¹²⁰ *See supra* note 115.

¹²¹ On this latter point, see *Rapanos v. United States*, 547 U.S. 715, 780-82 (2006) (Kennedy, J., concurring in the judgment) (explaining that the Corps may, by regulation or adjudication, choose to identify categories of tributaries that, “due to their volume of flow (either annually or on average), their proximity to navigable waters, or other relevant considerations, are significant enough that wetlands adjacent to them are likely, in the majority of cases, to perform important functions for an aquatic system incorporating navigable waters”).

¹²² *Rapanos v. United States*, 547 U.S. 715, 733 n.5 (2006) (Scalia, J., plurality). Current Corps/EPA guidance indicates that three months of continuous flow will typically constitute flow that is “at least seasonal[].” *See infra* note 269, at 6-7. In 2011, the Corps and EPA proposed in a draft guidance document to allow field staff to determine what seasonal flow means on a case-by-case basis, given variability in the length and timing of seasonal flow by eco-region. *See infra* note 272, at 13, 28.

¹²³ *See supra* note 114.

¹²⁴ *See supra* note 115.

¹²⁵ *See* 33 C.F.R. § 328.3(a)(7), (c) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(7), (b) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). *See also Rapanos v. United States*, 547 U.S. 715, 783, 785-86 (2006) (Kennedy, J., concurring in the judgment) (noting that “the end result” in case involving a berm may be that the Corps’ assertion of jurisdiction is valid); *id.* at 805-06 (Stevens, J., dissenting) (“While wetlands that are physically separated from other waters may perform less valuable functions, this is a matter for the Corps to evaluate in its permitting decisions. We made this clear in *Riverside Bayview* . . . which did not impose the plurality’s new requirement despite an absence of evidence that the wetland at issue had the sort of continuous surface connection required by the plurality today. . . . And as the facts of [the *Carabell* case] demonstrate, wetland separated by a berm from adjacent tributaries may still prove important to downstream water quality. . . .”) (citations omitted).

¹²⁶ 33 C.F.R. § 328.3(a)(8) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(7) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). EPA’s regulations add the following clarification: “[n]otwithstanding the determination of an area’s status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.” 40 C.F.R. § 230.3(s)(7); 40 C.F.R. § 122.2.

¹²⁷ As has been noted, Justice Kennedy’s discussion of aggregation in *Rapanos* was based specifically on wetlands. *Rapanos v. United States*, 547 U.S. 715, 780 (2006) (Kennedy, J., concurring in the judgment). However, the reasoning supporting his opinion suggests that it may be possible to aggregate streams under the significant nexus rationale.

¹²⁸ 33 C.F.R. § 328.3(a)(4) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(4) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). Waters of the United States do not include waste treatment systems (including treatment ponds or lagoons designed to meet the Act's requirements, but excluding certain cooling ponds). 33 C.F.R. § 328.3(a)(8) (Corps/Section 404 permitting program); 40 C.F.R. § 230.3(s)(7) (EPA/Section 404 permitting program); 40 C.F.R. § 122.2 (EPA/NPDES permitting program). The question of Clean Water Act jurisdiction over waste treatment systems, particularly with respect to cooling ponds, is complex, and the regulations should be consulted.

¹²⁹ See 33 C.F.R. §§ 328.4(b), 328.3(d), (f) (Corps/Section 404 permitting program: tidal waters); 33 C.F.R. §§ 328.4(c), 328.3(e) (Corps/Section 404 permitting program: non-tidal waters). However, the use of "ordinary high water mark" to assess jurisdiction over certain tributary streams and their adjacent wetlands has been called into doubt by Justice Kennedy's opinion in *Rapanos*. See 547 U.S. at 781-82 (Kennedy, J., concurring in the judgment). The precise limits of federal jurisdiction over "waters of the United States" can change gradually over time due to natural causes and even certain man-made alterations. 33 C.F.R. § 328.5 (Corps/Section 404 permitting program).

¹³⁰ See also Donna Downing, Tracie-Lynn Nadeau, and Rose Kwok, "Technical and Scientific Challenges in Implementing *Rapanos*' 'Water of the United States,'" 22:1 *Natural Resources & Environment* 42, ABA SEER (summer 2007) (providing "a brief overview of the types of scientific analyses and technical information available to lawyers and their field staff as they seek to implement CWA programs in a manner consistent with the Supreme Court decisions").

¹³¹ See, e.g., William J. Mitsch & James G. Gosselink, *Wetlands* (4th ed.) (John Wiley & Sons, Inc., 2007); J.D. Allan, *Stream Ecology: Structure and Function of Running Waters* (1st ed.) (Chapman & Hall, 1995).

¹³² See, e.g., U.S. Army Corps of Engineers, *Wetlands Delineation Manual*, Wetlands Research Program Technical Report Y-87-1 (Jan. 1987); North Carolina Division of Water Quality, *Identification Methods for the Origins of Intermittent and Perennial Streams, Version 3.1* (N.C. Department of Environment and Natural Resources, Division of Water Quality 2005). See also U.S. Army Corps of Engineers *et al.*, *National Wetlands Plant List* (2012) (updated and expanded in 2012, "[t]his national list of wetland plants by species and their wetland ratings provides general botanical information about wetland plants and is used extensively by federal and state agencies, the scientific and academic communities, and the private sector in wetland delineations and the planning and monitoring of wetland mitigation and restoration sites"), available at http://geo.usace.army.mil/wetland_plants/index.html.

¹³³ See, e.g., *Journal of the American Water Resources Association*; *Wetlands*; *Wetlands Ecology and Management*; and *Journal of Hydrology*.

¹³⁴ See, e.g., Candy C. Bartoldus, *A Comprehensive Review of Wetland Assessment Procedures: A Guide for Wetland Practitioners* (Environmental Concern, Inc., 1999); Maryland Department of Natural Resources, Chesapeake and Coastal Watershed Services, Watershed Restoration Division, *Stream Corridor Assessment Survey* (Md. Department of Natural Resources, 2001); John Galli, *Rapid Stream Assessment Technique* (Metropolitan Washington Council of Governments, 1992).

¹³⁵ See, e.g., J. Bradley Johnson, *Hydrogeomorphic Wetland Profiling: An Approach to Landscape and Cumulative Impacts Analysis* (EPA/620/R-05/001, U.S. EPA, Jan. 2005); U.S. Army Corps of Engineers, *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices*, Wetlands Research Program Technical Report WRP-DE-9 (Oct. 1995); U.S. Army Corps of Engineers, *The WES Stream Investigation and Streambank Stabilization Handbook* (Oct. 1997).

¹³⁶ See, e.g., EPA Science Advisory Board/Hypoxia Advisory Panel, *Hypoxia in the Northern Gulf of Mexico: An Update by the EPA Science Advisory Board* (Dec. 2007), available at http://water.epa.gov/type/watersheds/named/msbasin/upload/2008_1_31_msbasin_sab_report_2007.pdf. Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, *Gulf Hypoxia Action Plan 2008 for Reducing, Mitigating, and Controlling Hypoxia in the Northern Gulf of Mexico and Improving Water Quality in the Mississippi River Basin* (2008), available at http://water.epa.gov/type/watersheds/named/msbasin/upload/2008_8_28_msbasin_ghap2008_updat_e082608.pdf.

¹³⁷ See, e.g., U.S. Geological Survey, National Hydrography Dataset, available at <http://nhd.usgs.gov/>; U.S. Fish & Wildlife Service, National Wetlands Inventory, available at <http://www.fws.gov/wetlands/>.

¹³⁸ See *infra* note 261.

¹³⁹ See, e.g., National Research Council, *Wetlands: Characteristics and Boundaries* (National Academy of Sciences, 1995); Federal Interagency Stream Restoration Working Group, *Stream Corridor Restoration: Principles, Processes, and Practices*, GPO Item No. 0120-A, SuDocs No. A 57.6/2:EN3/PT.653 (Oct. 1998).

¹⁴⁰ See *infra* note 269, at 13 (December 2008 guidance) and see *infra* note 272, at 22 (2011 proposed draft guidance).

¹⁴¹ This resource is available at <http://cfpub.epa.gov/surf/locate/index.cfm>. See also EPA's Watershed Program home page: <http://water.epa.gov/type/watersheds/index.cfm>.

¹⁴² 33 U.S.C. §§ 1251-1387, available at <http://frwebgate.access.gpo.gov/cgi-bin/usc.cgi?ACTION=BROWSE&TITLE=33USCC26&PDFS=YES>.

¹⁴³ The three key Supreme Court decisions issued to date are discussed in Chapter Two of this handbook.

¹⁴⁴ See 33 C.F.R. § 328.3(a); 40 C.F.R. § 230.3(s).

¹⁴⁵ A comprehensive survey of all lower court decisions to date appears in the Case Appendix to this handbook. Up-to-the-minute research on federal case law can be performed online for a fee via research services such as Westlaw (www.westlaw.com) and Lexis (www.lexis.com). Free research tools are also available online, but they may not be as current or comprehensive.

¹⁴⁶ A discussion of the Corps' regulatory jurisdiction under Section 404 is available at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/juris_info.aspx. EPA also provides an overview of the Section 404 permitting program at <http://www.epa.gov/owow/wetlands/facts/fact12.html>, and additional links to relevant regulations are available at http://www.epa.gov/owow_keep/wetlands/facts/contents.html. A description of EPA's Section 402 NPDES permitting program, including links to regulations and related materials, is available at <http://cfpub.epa.gov/npdes/>. Links to regulations and related materials for the Section 303(d) impaired waters and TMDL program are available at <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/intro.cfm>. For more on Corps and EPA joint guidance documents addressing Clean Water Act jurisdiction, post-*Rapanos*, see the discussion in Chapter Six of this handbook.

¹⁴⁷ For example, information about, as well as opinions issued by, EPA's Environmental Appeals Board are available at http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf. A list of EPA rulings to date that address Clean Water Act jurisdiction appears at the end of the Case Appendix to this handbook.

¹⁴⁸ More information about Corps divisional and district boundaries, as well as contact information for local offices, is available at <http://www.usace.army.mil/Locations.aspx>. Including international offices, the Corps has nine divisions covering 41 districts in the United States and abroad.

¹⁴⁹ More information about the EPA regions, as well as contact information for local offices, is available at <http://www.epa.gov/aboutepa/index.html> - regional.

¹⁵⁰ E.g., Turner Odell, "On Soggy Ground—State Protection for Isolated Wetlands," *National Wetlands Newsletter* 7-10, Sept.-Oct. 2003; Association of State Wetland Managers, *Common Questions: The SWANCC Decision; Role of the States in Filling the Gap*, 2006.

¹⁵¹ See, e.g., William J. Mitsch & James G. Gosselink, *Wetlands* 259-60 (4th ed.) (John Wiley & Sons, Inc., 2007); National Research Council, *Wetlands: Characteristics and Boundaries*, *supra* note 139, at 36.

¹⁵² *Id.* at 3.

¹⁵³ See, e.g., Ken M. Fritz, Brent R. Johnson, & David M. Waters, *Field Operations Manual for Assessing the Hydrologic Permanence and Ecological Condition of Headwater Streams* (EPA 600/R-06/126, U.S. Environmental Protection Agency—Office of Research and Development, Oct. 2006); Miguel Restrepo & Pamela

Waisanen, *Strategies for Stream Classification Using GIS* (U.S. Geological Survey, 2004); North Carolina Division of Water Quality, *Identification Methods for the Origins of Intermittent and Perennial Streams* (Version 3.1, N.C. Department of Environment and Natural Resources—Division of Water Quality, Feb. 2005); Fairfax County Public Works and Environmental Services, *Perennial Stream Field Identification Protocol* (Fairfax County, May 2003).

¹⁵⁴ See William J. Mitsch & James G. Gosselink, *Wetlands* (3d ed.) (John Wiley & Sons, Inc., 2000) and Mitsch & Gosselink (4th ed.), *supra* note 151. Multiple classification systems are used by scientists, regulators, and managers to identify wetlands and their functions. Cowardin's Classification of Wetlands and Deepwater Habitats of the United States, developed for the U.S. Fish & Wildlife Service National Wetlands Inventory, is likely the most comprehensive classification available for the Nation's waters and wetlands. However, the number of categories associated with Cowardin's classification renders it unwieldy for purposes of summarizing the literature relevant to establishing a "significant nexus" to traditional navigable waters. Indeed, a substantial number of Cowardin's aquatic categories *are* traditional navigable waters. Another relevant classification system is Brinson's hydrogeomorphic (HGM) system. Developed in conjunction with the U.S. Army Corps of Engineers, the HGM approach is designed to evaluate the physical, chemical, and biological functions of wetlands. However, HGM does not readily allow for comparison of similar wetlands from different regions, requiring a regional specificity beyond the scope of this review. See Lewis M. Cowardin, Virginia Carter, Francis C. Golet, & Edward T. LaRoe, *Classification of Wetlands and Deepwater Habitats of the United States* (U.S. Fish & Wildlife Service, 1979); Mark M. Brinson, *A Hydrogeomorphic Classification for Wetlands* (Wetlands Research Program Technical Report WRP-DE-4, U.S. Army Corps of Engineers, Aug. 1993).

¹⁵⁵ It should be noted that certain wetland types may "fall between the cracks" of this simplified approach to classification: *e.g.*, inland saline marshes. However, these categories cover most wetlands found in the United States.

¹⁵⁶ See Mitsch & Gosselink (4th ed.), *supra* note 151, at 260.

¹⁵⁷ See, *e.g.*, North Carolina Division of Water Quality, *supra* note 153; Fairfax County Public Works and Environmental Services, *supra* note 153; Restrepo & Waisanen, *supra* note 153; Featured Collection: Headwaters Hydrology, 43(1), *Journal of the American Water Resources Association* 1-280 (Feb. 2007).

¹⁵⁸ See William J. Mitsch, James G. Gosselink, Christopher J. Anderson, & Li Zhang, *Wetland Ecosystems* 118-19 (John Wiley & Sons, Inc., 2009).

¹⁵⁹ National Research Council, *Compensating for Wetland Losses Under the Clean Water Act* 49 (National Academy of Sciences, 2001).

¹⁶⁰ See Mitsch & Gosselink (3d ed.), *supra* note 154, at 409-14.

¹⁶¹ D. Moreno-Mateos, F.A. Comín, C. Pedrocchi, & J. Causape, "Effect of Wetlands on Water Quality of an Agricultural Catchment in a Semi-arid Area Under Land Use Transformation," 29(4) *Wetlands* 1104-13 (2009); E.J. Dunne, J. Smith, D.B. Perkins, M.W. Clark, J.W. Jawitz, & K.R. Reddy, "Phosphorous storages in historically isolated wetland ecosystems and surrounding pasture uplands," 31 *Ecological Engineering* 16-28 (2007); W.G. Duffy & S.N. Kahara, "Wetland Ecosystem Services in California's Central Valley and Implications for the Wetland Reserve Program," 21(3) *Ecological Applications* S18-S30 (2011).

¹⁶² D.M. Klarer & D.F. Millie, "Amelioration of Storm-water Quality by a Freshwater Estuary," 116 *Archiv für Hydrobiologie* 375-89 (1989); William J. Mitsch & B.C. Reeder, "Modelling Nutrient Retention of a Freshwater Coastal Wetland: Estimating the Roles of Primary Productivity, Sedimentation, Resuspension, and Hydrology," 54 *Ecological Modelling* 151-87 (1991); William J. Mitsch & B.C. Reeder, "Nutrient and Hydrologic Budgets of a Great Lakes Coastal Freshwater Wetland During a Drought Year," 1(4) *Wetlands Ecology and Management* 211-23 (1992).

¹⁶³ W.G. Crumpton & L.G. Goldsborough, "Nitrogen Transformation and Fate in Prairie Wetlands," 8 *Great Plains Research* 57-82 (1998).

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- ¹⁶⁴ Dennis F. Whigham & Thomas E. Jordan, “Isolated Wetlands and Water Quality,” 23(3) *Wetlands* 541-49, 543-44 (2003).
- ¹⁶⁵ Mark M. Brinson, *A Hydrogeomorphic Classification for Wetlands* 20 (Wetlands Research Program Technical Report WRP-DE-4, U.S. Army Corps of Engineers, Aug. 1993).
- ¹⁶⁶ Paul H. Zedler, “Vernal Pools and the Concept of ‘Isolated Wetlands,’” 23(3) *Wetlands* 597-607 (2003).
- ¹⁶⁷ C.R. Lane & E. D’Amico, “Calculating the Ecosystem Service of Water Storage in Isolated Wetlands using LIDAR in North Central Florida, USA,” 30 *Wetlands* 967-77 (2010).
- ¹⁶⁸ Ralph W. Tiner, “Geographically Isolated Wetlands of the United States,” 23(3) *Wetlands* 494-516, 505 (2003); P.J. Phillips & R.J. Shedlock, “Hydrology and Chemistry of Ground Water and Seasonal Ponds in the Atlantic Coastal Plain in Delaware,” 141 *Journal of Hydrology* 157-78 (1993); M.A. Hayes, “Maryland Wetland Resources,” in *National Water Summary on Wetland Resources* 219-24 (J.D. Fretwell, J.S. Williams, & P.J. Redman, compilers, U.S. Geological Survey, 1996); T.R. Morley, A.S. Reeve, & A.J.K. Calhoun, “The Role of Headwater Wetlands in Altering Streamflow and Chemistry in a Maine, USA Catchment,” 47(2) *Journal of the American Water Resources Association* 337-49 (2011).
- ¹⁶⁹ Jason J. Gurdack & Cassia D. Roe, U.S. Geological Survey, Circular 1333, *Recharge Rates and Chemistry Beneath Playas of the High Plains Aquifer—A Literature Review and Synthesis* (2009).
- ¹⁷⁰ See Mitsch *et al.*, *supra* note 158, at 131-36; W.G. Duffy & S.N. Kahara, “Wetland Ecosystem Services in California’s Central Valley and Implications for the Wetland Reserve Program,” 21(3) *Ecological Applications* S18-S30 (2011).
- ¹⁷¹ A.J. Derkson, “Autumn Movements of Underyearling Northern Pike, *Esox lucius*, from a Large Manitoba Marsh,” 103 *Canadian Field Naturalist* 429-31 (1990). See also Mitsch *et al.*, *supra* note 158, at 135.
- ¹⁷² T.D. Stephenson, “Fish Reproductive Utilization of Coastal Marshes of Lake Ontario Near Toronto,” 16 *Journal of Great Lakes Research* 71-81 (1990). See also Mitsch *et al.*, *supra* note 158, at 135.
- ¹⁷³ David A. Haukos *et al.*, “Spring Migration of Northern Pintails From Texas and New Mexico, USA,” 29 *Waterbirds* 127-36 (2006).
- ¹⁷⁴ See Mitsch *et al.*, *supra* note 158, at 175.
- ¹⁷⁵ Barbara L. Bedford & Kevin S. Godwin, “Fens of the United States: Distribution, Characteristics, and Scientific Connection Versus Legal Isolation,” 23(3) *Wetlands* 608-29, 621-22 (2003).
- ¹⁷⁶ See Whigham & Jordan, *supra* note 164, at 544-45.
- ¹⁷⁷ Elon S. Verry & D.R. Timmons, “Waterborne Nutrient Flow through an Upland-Peatland Watershed in Minnesota,” 63.5 *Ecology* 1456-67 (1982).
- ¹⁷⁸ A. Vikman, S. Sarkkola, H. Koivusalo, T. Sallantausta, J. Laine, N. Silvan, H. Nousiainen, & M. Nieminen, “Nitrogen Retention by Peatland Buffer Areas at Six Forested Catchments in Southern and Central Finland,” 641(1) *Hydrobiologia* 171-83 (2010).
- ¹⁷⁹ See Brinson, *supra* note 165, at 20.
- ¹⁸⁰ See Verry & Timmons, *supra* note 177; Tiffany Wright, Jennifer Tomlinson, Tom Schueler, Karen Capiella, Anne Kitchell, & Dave Hirschman, *Direct and Indirect Impacts of Urbanization on Wetland Quality* (Center for Watershed Protection, Dec. 2006).
- ¹⁸¹ See Bedford & Godwin, *supra* note 175, at 621-22.
- ¹⁸² See Brinson, *supra* note 165, at 21; Mitsch & Gosselink (4th ed.), *supra* note 151, at 464-66.
- ¹⁸³ A.D.M. Latham, M.C. Latham, & M.S. Boyce, “Habitat Selection and Spatial Relationships of Black Bears (*Ursus americanus*) with Woodland Caribou (*Rangifer tarandus caribou*) in Northeastern Alberta,” 89(4) *Canadian Journal of Zoology* 267-77 (2011).
- ¹⁸⁴ Mitsch *et al.*, *supra* note 158, at 91.

¹⁸⁵ *Id.* at 469, 508.

¹⁸⁶ See Whigham & Jordan, *supra* note 164, at 543-44, 547.

¹⁸⁷ R. Hunter, R. Lane, J. Day, J. Lindsey, J. Day, & M. Hunter, “Nutrient Removal and Loading Rate Analysis of Louisiana Forested Wetlands Assimilating Treated Municipal Effluent,” 44(5) *Environmental Management* 865-73 (2009).

¹⁸⁸ J.W. Day, Jr., T.J. Butler, & W.G. Conner, “Productivity and Nutrient Export Studies in a Cypress Swamp and Lake System in Louisiana,” in *Estuarine Processes*, Vol. II, 255-69 (M. Wiley, ed., 1977); William J. Mitsch, C.L. Dorge, & J.R. Weinoff, “Ecosystem Dynamics and a Phosphorous Budget of an Alluvial Cypress Swamp in Southern Illinois,” 60 *Ecology* 1116-24 (1979); E.J. Kuenzler, P.J. Mulholland, L.A. Yarbrow, & L.A. Smock, *Distributions and Budgets of Carbon, Phosphorous, Iron, and Manganese in a Floodplain Swamp Ecosystem* (Report 17, Water Resources Research Institute of North Carolina, 1980). See also Mitsch *et al.*, *supra* note 158, at 116-17.

¹⁸⁹ *Id.* at 474-81.

¹⁹⁰ R. Daniel Smith, Alan Ammann, Candy Bartoldus, & Mark M. Brinson, *An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands, and Functional Indices*, Wetlands Research Program Technical Report WRP-DE-9, U.S. Army Corps of Engineers (Oct. 1995), at 24.

¹⁹¹ K.C. Ewel, “Multiple Demands on Wetlands,” 40 *BioScience* 660-66 (Oct. 1990).

¹⁹² N. Owiler, *The Value of Natural Capital in Settled Areas of Canada* (Ducks Unlimited and The Nature Conservancy of Canada, 2004).

¹⁹³ See *Compensating for Wetland Losses Under the Clean Water Act*, *supra* note 159, at 52.

¹⁹⁴ Scott G. Leibowitz, “Isolated Wetlands and their Functions: An Ecological Perspective,” 23(3) *Wetlands* 517-31, 527 (2003).

¹⁹⁵ S. Miyazono, J.N. Aycock, L.E. Miranda, & T.E. Tietjen, “Assemblage Patterns of Fish Functional Groups Relative to Habitat Connectivity and Conditions in Floodplain Lakes,” 19(4) *Ecology of Freshwater Fish* 578-85 (2010).

¹⁹⁶ See Mitsch & Gosselink (3d ed.), *supra* note 154, at 513.

¹⁹⁷ *Id.* at 515. See also J. Magner & S. Alexander, “Drainage and Nutrient Attenuation in a Riparian Interception-Wetland: Southern Minnesota, USA,” 54 *Environmental Geology* 1367-76 (2008).

¹⁹⁸ Christopher B. Craft & William P. Casey, “Sediment and Nutrient Accumulation in Floodplain and Depressional Freshwater Wetlands of Georgia, USA,” 20(2) *Wetlands* 323-32 (2000).

¹⁹⁹ William J. Mitsch, John W. Day, Jr., J. Wendell, Gilliam, Peter M. Groffman, Donald L. Hey, Gyles W. Randall, & Naiming Wang, “Reducing Nitrogen Loading to the Gulf of Mexico from the Mississippi River Basin: Strategies to Counter a Persistent Ecological Problem,” 51(5) *BioScience* 373-88 (2001).

²⁰⁰ See U.S. Environmental Protection Agency, “Wetlands and People,” available at <http://water.epa.gov/type/wetlands/people.cfm>.

²⁰¹ See Mitsch & Gosselink (3d ed.), *supra* note 154, at 520-32.

²⁰² See Smith *et al.*, *supra* note 190, at 24.

²⁰³ Tiffany Wright, Jennifer Tomlinson, Tom Schueler, Karen Cappiella, Anne Kitchell, & Dave Hirschman, *Direct and Indirect Impacts of Urbanization on Wetland Quality* (Center for Watershed Protection, Dec. 2006).

²⁰⁴ H.S. Xu, T.Q. Zhao, H.Q. Meng, Z.X. Xu, & C.H. Ma, “Relationship Between Groundwater Level in Riparian Wetlands and Water Level in the River,” 32(2) *Environmental Science* 362-67 (2011).

²⁰⁵ See Mitsch & Gosselink (3d ed.), *supra* note 154, at 547.

²⁰⁶ R.L. Welcomme, *Fisheries Ecology of Floodplain Rivers* (Longman, 1979); S. Risotto & R.E. Turner, “Annual Fluctuations in the Abundance of the Commercial Fisheries of the Mississippi River and Tributaries,” 4 *North American Journal of Fisheries Management* 557-74 (1985); T.J. Kwak, “Lateral Movement and the Use of Floodplain Habitat by Fishes of the Kankakee River, Illinois,” 120 *American Midland Naturalist* 241-49 (1988); R.E. Turner, “Fish and Fisheries of Inland Wetlands,” 13 *Water Quality Bulletin* 7-9, 13 (1988); V.W. Lambou, *Importance of Bottomland Forest Zones to Fishes and Fisheries: A Case History*, in *Ecological Processes and Cumulative Impacts: Illustrated by Bottomland Hardwood Wetland Ecosystems* 125-93 (James G. Gosselink, L.C. Lee, & T.A. Muir, eds., Lewis Publishers, 1990); H.D. Hall & V.W. Lambou, *The Ecological Significance to Fisheries of Bottomland Hardwood Ecosystems: Values, Detrimental Impacts, and Assessment: The Report of the Fisheries Workgroup* 481-531 (James G. Gosselink, L.C. Lee, & T.A. Muir, eds., Lewis Publishers, 1990); K.J. Kilgore & J.A. Baker, “Patterns of Larval Fish Abundance in a Bottomland Hardwood Wetland,” 16 *Wetlands* 288-95 (1996).

²⁰⁷ *Id.*

²⁰⁸ J.R. Sedell & J.L. Froggatt, “Importance of Streamside Forests to Large Rivers: The Isolation of the Willamette River, Oregon, USA, from its Floodplain by Snagging and Streamside Forest Removal,” 22 *Verhandlungen Internationale Vereinigung für Theoretische und Angewandte Limnologie* 1828-34 (1984); see Mitsch & Gosselink (3d ed.), *supra* note 154, at 548.

²⁰⁹ *Id.* at 559.

²¹⁰ R.L. Vannote, G.W. Minshall, K.W. Cummins, J.R. Sedell, & C.E. Cushing, “The River Continuum Concept,” 37 *Canadian Journal of Fisheries and Aquatic Sciences* 130-37 (1980).

²¹¹ Mark M. Brinson, A.E. Lugo, & S. Brown, “Primary Productivity, Decomposition and Consumer Activity in Freshwater Wetlands,” 12 *Annual Review of Ecology and Systematics* 123-61 (1981); Mark M. Brinson, B.L. Swift, R.C. Plantico, & J.S. Barclay, *Riparian Ecosystems: Their Ecology and Status* (FWS/OBS-81/17, U.S. Fish & Wildlife Service, 1981).

²¹² See, e.g., 33 U.S.C. § 1362(7), CWA § 502(7) (waters of the United States “including the territorial seas”); *United States v. Stoeco Homes, Inc.*, 498 F.2d 597, 610 (3d. Cir. 1974) (ebb and flow test); *States v. Sasser*, 738 F. Supp. 177, 179-80 (D.S.C. 1990) (discussing history of “ebb and flow of tide” as proper basis for asserting federal jurisdiction over navigable waters, in context of Rivers and Harbors Act). Traditional navigable waters at common law include all waters that are subject to the ebb and flow of the tide. *Scranton v. Wheeler*, 179 U.S. 141 (1900) (navigational servitude). See also 33 C.F.R. § 328.3(a)(1); 40 C.F.R. § 230.3(s)(1).

²¹³ See Mitsch *et al.*, *supra* note 158, at 23.

²¹⁴ *Id.* at 74.

²¹⁵ J.M. Teal, “Energy Flow in the Salt Marsh Ecosystem of Georgia,” 43 *Ecology* 18-19 (1962). See also Mitsch *et al.*, *supra* note 158, at 43-44.

²¹⁶ *Id.* at 301.

²¹⁷ L.M. Pomeroy, L.R. Shenton, R.D. Jones, & R.J. Reimold, “Nutrient Flux in Estuaries,” in *Nutrients and Eutrophication*, American Society of Limnology and Oceanography Special Symposium 274-91 (G.E. Likens, ed., 1972). See also Mitsch & Gosselink (3d ed.), *supra* note 154, at 279.

²¹⁸ *Id.* at 273-75.

²¹⁹ *Id.* at 262.

²²⁰ M.H. Bond, S.A. Hayes, C.V. Hanson, & R.B. MacFarlane, “Marine Survival of Steelhead (*Oncorhynchus mykiss*) Enhanced by a Seasonally Closed Estuary,” 65 *Canadian Journal of Fisheries and Aquatic Sciences* 2242-52 (2008).

²²¹ Examples of migratory fish species that feed along the edge of tidal salt marshes or move into the marsh to feed during high tides include: silverside (*Menidia extensa*), mummichog (*Fundulus heteroclitus*), sheepshead minnow (*Cyprinodon variegatus*), diamond killifish (*Adinia xenica*), tidewater silverside (*Menidia*

beryllina), gulf killifish, (*Fundulus grandis*), and sailfin molly (*Poecilia latipinna*). Mitsch *et al.*, *supra* note 158, at 37.

²²² R.J. Zimmerman, T.J. Minellos, D.L. Smith, & J. Kostera, *The Use of Juncus and Spartina Marshes by Fisheries Species in Lavaca Bay, Texas, with Reference to the Effects of Floods* (NOAA Technical Memo NMFS-SEFC-25-1, National Oceanographic and Atmospheric Administration—National Marine Fisheries Service, 1990). *See also* Mitsch *et al.*, *supra* note 158, at 37.

²²³ *Id.*

²²⁴ *Id.* at 307-09.

²²⁵ R.L. Simpson, D.F. Whigham, & R. Walker, “The Ecology of Freshwater Tidal Wetlands,” 33 *BioScience* 255-59 (1983). *See also* Mitsch & Gosselink (3d ed.), *supra* note 154, at 331.

²²⁶ B. Gribsholt, B. Veuger, A. Tramper, J.J. Middelburg, & H.T.S. Boschker, “Long-term Super(15)N-Nitrogen Retention in Tidal Freshwater Marsh Sediment: Elucidating the Microbial Contribution,” 54(1) *Limnology and Oceanography* 13-22 (2009).

²²⁷ Mitsch & Gosselink (3d ed.), *supra* note 154, at 311-13.

²²⁸ *See* Smith *et al.*, *supra* note 190, at 24.

²²⁹ W.E. Odum, T.J. Smith, III, J.K. Hoover, & C.C. McIvor, *The Ecology of Tidal Freshwater Marshes of the United States East Coast: A Community Profile* (FWS/OBS-87/17, U.S. Fish & Wildlife Service, 1984). *See also* Mitsch *et al.*, *supra* note 158, at 53.

²³⁰ *Id.* at 335.

²³¹ *Id.* at 340.

²³² *Id.* at 335-36.

²³³ *Id.* at 366. *See also* J.E. Zhang, J.L. Liu, Y. Ouyang, B.W. Liao, & B.L. Zhao, “Removal of Nutrients and Heavy Metals from Wastewater with Mangrove *Sonneratia apetala* Buch-Ham,” 36(6) *Ecological Engineering* 807-12 (2010).

²³⁴ Y. Mazda, M. Magi, H. Nanao, M. Kogo, T. Miyagi, N. Kanazawa, & D. Kobashi, “Coastal Erosion Due to Longterm Human Impact on Mangrove Forests,” 10(1) *Wetlands Ecology and Management* 1-9 (2002); Elizabeth L. Bennett & Colin J. Reynolds, “The Value of a Mangrove Area in Sarawak,” 2(4) *Biodiversity and Conservation* 359-75 (1993).

²³⁵ *See* Mitsch & Gosselink (3d ed.), *supra* note 154, at 366-67.

²³⁶ W.E. Odum & E.J. Heald, “Trophic Analyses of an Estuarine Mangrove Community,” 22 *Bulletin of Marine Science* 671-738 (1972); A. Yáñez-Arancibia, A.L. Lara-Dominguez, J.L. Rojan-Galaviz, P. Sánchez-Gil, J.W. Day, & C.J. Madden, “Seasonal Biomass and Diversity of Estuarine Fishes Coupled with Tropical Habitat Heterogeneity (Southern Gulf of Mexico),” 33-Supplemental A *Journal of Fish Biology* 191-200 (1988); A. Yáñez-Arancibia, A.L. Lara-Dominguez, & J.W. Day, “Interactions Between Mangrove and Seagrass Habitats Mediated by Estuarine Nekton Assemblages: Coupling of Primary and Secondary Production,” 264 *Hydrobiologia* 1-12 (1993).

²³⁷ Judy L. Meyers, Louis A. Kaplan, Denis Newbold, David L. Strayer, Christopher J. Woltemade, Joy B. Zedler, Richard Beilfuss, Quentin Carpenter, Ray Semlitsch, Mary C. Watzin, & Paul H. Zedler, *Where Rivers Are Born: The Scientific Imperative for Defending Small Streams and Wetlands* (American Rivers and Sierra Club, July 2003); Tracie-Lynn Nadeau & Mark Cable Rains, “Hydrological Connectivity Between Headwater Streams and Downstream Waters: How Science Can Inform Policy,” 43(1) *Journal of the American Water Resources Association* 118-33 (2007).

²³⁸ *See* North Carolina Division of Water Quality, *supra* note 153; Nadeau & Rains, *supra* note 237; Restrepo & Waisanen, *supra* note 153.

²³⁹ Current Corps/EPA guidance characterizes a tributary as the entire reach of the stream that is of the same order—*i.e.*, “from the point of confluence, where two lower order streams meet to form the tributary, downstream to the point such tributary enters a higher order stream.” *See infra* note 269, at 10. The agencies note that “[t]he flow characteristics of a particular tributary generally will be evaluated at the farthest downstream limit of such tributary.” *Id.* at 6 n.24.

²⁴⁰ *See* Mary C. Freeman, Catherine M. Pringle, & C. Rhett Jackson, “Hydrologic Connectivity and the Contribution of Stream Headwaters to Ecological Integrity at Regional Scales,” 43(1) *Journal of the American Water Resources Association* 5-14 (2007).

²⁴¹ Bruce J. Peterson, Wilfred M. Wollhein, Patrick J. Mulholland, Jackson R. Webster, Judy L. Meyers, Jennifer L. Tank, Eugènia Martí, William B. Bowden, H. Maurice Valett, Anne E. Hershey, William H. McDowell, Walter K. Dodds, Stephen K. Hamilton, Stanley Gregory, & Donna D. Morrall, “Control of Nitrogen Export from Watersheds by Headwater Streams,” 292 *Science* 86-90 (2001); Richard B. Alexander, Elizabeth W. Boyer, Richard A. Smith, Gregory E. Schwarz, & Richard B. Moore, “The Role of Headwater Streams in Downstream Water Quality,” 43(1) *Journal of the American Water Resources Association* 41-59 (2007); Frank J. Triska, John H. Duff, Richard W. Sheibley, Alan P. Jackman, & Ronald J. Avanzino, “DIN Retention-Transport Through Four Hydrologically Connected Zones in a Headwater Catchment of the Upper Mississippi River,” 43(1) *Journal of the American Water Resources Association* 60-71 (2007); C.A. Klocker, S.S. Kaushal, P.M. Groffman, P.M. Mayer, & R.P. Morgan, “Nitrogen Uptake and Denitrification in Restored and Unrestored Streams in Urban Maryland,” 71 *Aquatic Sciences* 411-24 (2009).

²⁴² *See* Peterson *et al.*, *supra* note 241.

²⁴³ *See* Meyers *et al.*, *supra* note 237, at 14.

²⁴⁴ *See* L. Levick, J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D.P. Guertin, M. Tluczek, & W. Kepner, *The Ecological and Hydrological Significance of Ephemeral and Intermittent Streams in the Arid and Semi-arid American Southwest* (U.S. EPA and USDA/ARS Southwest Watershed Research Center, EPA/600/R-08/134, ARS/233046, 2008).

²⁴⁵ *See* Meyers *et al.*, *supra* note 237, at 14.

²⁴⁶ *Id.* at 13.

²⁴⁷ L. Allan James, “Sustained Storage and Transport of Hydraulic Gold Mining Sediment in the Bear River, California,” 79(4) *Annals of the Association of American Geographers* 570-92 (1989).

²⁴⁸ D. Goodrich, D. Williams, C. Unkrich, R. Scott, K. Hultine, D. Pool, A. Coes, & J. Hogan, “Multiple Approaches to Estimate Ephemeral Channel Recharge,” in *Proceedings of the First Interagency Conference on Research in the Watersheds* 118-24 (2003); John A. Izbicki, “Physical and Temporal Isolation of Mountain Headwater Streams in the Western Mojave Desert, Southern California,” 43(1) *Journal of the American Water Resources Association* 26-40 (2007). *See also* D.R. Pool & Alissa L. Coes, *Hydrologic Investigations of the Sierra Vista Subwatershed of the Upper San Pedro Basin, Cochise County, Southeast Arizona* (Water-Resources Investigations Report 99-4197, U.S. Geological Survey, 1999).

²⁴⁹ *See* Meyers *et al.*, *supra* note 237.

²⁵⁰ Judy L. Meyers, David L. Strayer, J. Bruce Wallace, Sue L. Eggert, Gene S. Helfman, & Norman E. Leonard, “The Contribution of Headwater Streams to Biodiversity in River Networks,” 43(1) *Journal of the American Water Resources Association* 86-103 (2007).

²⁵¹ D.C. Erman & V.M. Hawthorne, “The Quantitative Importance of an Intermittent Stream in the Spawning of Rainbow Trout,” 105 *Transactions of the American Fisheries Society* 675-81 (1976). *See also* Meyers *et al.*, *supra* note 250.

²⁵² *Id.*

²⁵³ *Id.*

²⁵⁴ R.J. DiStefano, D.D. Magoulick, E.M. Imhoff, & E.R. Larson, “Imperiled Crayfish Use Hyporheic Zone During Seasonal Drying of an Intermittent Stream,” 28(1) *Journal of the North American Benthological Society* 142-52 (2009).

²⁵⁵ Meyers *et al.*, *supra* note 250.

²⁵⁶ T.G. Brown & G.F. Hartman, “Contribution of Seasonally Flooded Lands and Minor tributaries to the Production of Coho Salmon in Carnation Creek, British Columbia,” 117 *Transactions of the American Fisheries Society* 546-51 (1988); P.J. Wigington, J.L. Ebersole, M.E. Colvin, S.G. Leibowitz, B. Miller, B. Hansen, H. Lavigne, D. White, J.P. Baker, M.R. Church, J.R. Brooks, M.A. Cairns, & J.E. Compton, “Coho Salmon Dependence on Intermittent Streams,” 4 *Frontiers in Ecology and Environment* 513-18 (2006). See Meyers *et al.*, *supra* note 250.

²⁵⁷ *Id.* See also Levick *et al.*, *supra* note 244.

²⁵⁸ See *Wetlands: Characteristics and Boundaries*, *supra* note 139, at 29.

²⁵⁹ Allan Hirsch, “Regulatory Context for Cumulative Impact Research,” 12(5) *Environmental Management* 715-23 (2005); J. Bradley Johnson, *Hydrogeomorphic Wetland Profiling: An Approach to Landscape and Cumulative Impacts Analysis* vi (EPA/620/R-05/001, U.S. EPA, Jan. 2005).

²⁶⁰ *Id.*

²⁶¹ State-specific natural heritage programs operate nationwide and maintain biological inventories. NatureServe represents the network of natural heritage programs. Access to the NatureServe network of member programs is available at <http://www.natureserve.org/visitLocal/index.jsp>.

²⁶² S.G. Leibowitz, P.J. Wigington Jr., M.C. Rains, & D.M. Downing, “Non-navigable streams and adjacent wetlands: addressing science needs following the Supreme Court’s *Rapanos* decision,” 6 *Frontiers in Ecology and Environment* 364-71 (2008).

²⁶³ K.M. Fritz, B.R. Johnson, & D.M. Walters, “Physical Indicators of Hydrologic Permanence in Forested Headwater Streams,” 27(3) *Journal of the North American Benthological Society* 690-704 (2008).

²⁶⁴ See B.S. Caruso, “Science and policy integration issues for stream and wetland jurisdictional determinations in a semi-arid region of the western U.S.,” 19 *Wetlands Ecology and Management* 351-71 (2011).

²⁶⁵ For more on this new tool, see <http://yosemite.epa.gov/R10/ecocomm.nsf/wetlands/sdam>.

²⁶⁶ See Bridget DiCosmo, “EPA Readies ‘Connectivity’ Study to Bolster Clean Water Jurisdiction Policy,” *Inside EPA* 1, 20, Feb. 17, 2012.

²⁶⁷ U.S. Army Corps of Engineers & U.S. Environmental Protection Agency, *Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in Rapanos v. United States & Carabell v. United States*, June 5, 2007, available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/2007_6_5_wetlands_RapanosGuidance6507.pdf.

²⁶⁸ The 180-day public comment period for the initial guidance document was subsequently extended by 45 days. 72 Fed. Reg. 67304 (Nov. 28, 2007).

²⁶⁹ U.S. Army Corps of Engineers & U.S. Environmental Protection Agency, *Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in Rapanos v. United States & Carabell v. United States*, Dec. 2, 2008, available at http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf.

²⁷⁰ Accordingly, the guidance does not address other Clean Water Act programs, such as Section 402. *Id.* at 4 & n.18.

²⁷¹ *Id.* at 4 n.17.

²⁷² U.S. Army Corps of Engineers & U.S. Environmental Protection Agency, *Draft Guidance on Identifying Waters Protected by the Clean Water Act*, May 2, 2011, available at <http://www.regulations.gov/documentDetail;D=EPA-HQ-OW-2011-0409-0002>.

²⁷³ U.S. Environmental Protection Agency & U.S. Environmental Protection Agency, “Fact Sheet: Guidance to Identify Waters Protected by the Clean Water Act” at 1, available at <http://water.epa.gov/lawsregs/guidance/wetlands/upload/cwa-guidance-factsheet.pdf>.

²⁷⁴ See *supra* note 272, at 3.

²⁷⁵ See 76 Fed. Reg. 24479 (May 2, 2011) (inviting public comment on proposed guidance for 60 days); 76 Fed. Reg. 39101 (July 5, 2011) (extending period for public comment by 30 days). The contents of the docket (No. EPA-HQ-OW-2011-0409) can be viewed at <http://www.regulations.gov/documentDetail;D=EPA-HQ-OW-2011-0409>.

²⁷⁶ E.g., U.S. EPA, “Federalism Consultation,” Nov. 10, 2011, at 5, [http://www.google.com/search?client=safari&rls=en&q=U.S.+EPA,+“Federalism+Consultation,”+Nov.+10,+2011&ie=UTF-8&oe=UTF-8](http://www.google.com/search?client=safari&rls=en&q=U.S.+EPA,+\); see also U.S. EPA, “Clean Water Act Definition of ‘Waters of the United States,’” available at <http://water.epa.gov/lawsregs/guidance/wetlands/CWAwaters.cfm>.

²⁷⁷ See, e.g., “Assessing Jurisdiction under the New Clean Water Act Guidance,” expert panel discussion on draft proposed guidance, Environmental Law Institute, Washington, DC (June 28, 2011), event description available at http://www.eli.org/Seminars/past_event.cfm?eventid=628, and event transcript published in edited form as “Assessing Jurisdiction under the New Clean Water Act Guidance,” 41 *Environmental Law Reporter* 10773, Sept. 2011; and “Panel Discussion: Draft Guidance on Identifying Waters Protected by the Clean Water Act”—Law & Policy, *National Wetlands Newsletter* 7-9, Sept.-Oct. 2011.

²⁷⁸ See, e.g., William K. Reilly, “Keep the Clean Water Act Strong,” *New York Times*, Nov. 28, 2011 (op-ed by former U.S. EPA Administrator); Letter of National Sportsmen and Conservation Groups to Members of U.S. House of Representatives Appropriations Committee, June 13, 2011 (arguing against passage of appropriations bill that would have prohibited the Corps from spending funds to further develop or implement a post-*Rapanos* guidance document).

²⁷⁹ See, e.g., Letter from Sens. James Inhofe and Jeff Sessions, and Reps. Bob Gibbs and John Mica, to EPA Administrator Lisa Jackson and Assistant Secretary of the Army for Civil Works Jo-Ellen Darcy, Nov. 8, 2011 (calling for agencies to formally withdraw the proposed guidance); Sen. Amend. 939 (112th Congress) (one among various Congressional proposals to amend an appropriations bill so as to prohibit the Corps from spending funds to further develop or implement post-*Rapanos* guidance). See also “Preserve the Waters of the United States Act,” S. 2245 (112th Congress), introduced March 28, 2012 by Sen. J. Barrasso (proposing to prohibit the Corps or EPA from finalizing the proposed guidance or from using that guidance, “or any substantially similar guidance,” as the basis for any decisions regarding the scope of the CWA or for any rulemaking), available at <http://www.gpo.gov/fdsys/pkg/BILLS-112s2245is/pdf/BILLS-112s2245is.pdf>; H.R. 4965 (112th Congress), introduced April 27, 2012 by Rep. J. Mica (same), available at <http://www.gpo.gov/fdsys/pkg/BILLS-112hr4965ih/pdf/BILLS-112hr4965ih.pdf>.

²⁸⁰ E.g., Paul Quinlan, “EPA sends wetland guidance to White House for final review,” *E&E Greenwire*, Feb. 22, 2012.

²⁸¹ See U.S. EPA, “Clean Water Protection Rule,” at Regulatory Development and Retrospective Review Tracker, RIN 2040-AF30 (indicating that work was initiated on rule in March 2011, and that “rule would make clear which waterbodies are protected under the Clean Water Act”), available at [http://yosemite.epa.gov/opec/RuleGate.nsf/\(LookupRIN\)/2040-AF30#1](http://yosemite.epa.gov/opec/RuleGate.nsf/(LookupRIN)/2040-AF30#1). See also Paul Quinlan, “Obama admin’s push to clarify muddled regs appears stalled,” *E&E Greenwire*, Mar. 12, 2012 (quoting sources from environmental groups and industry as saying that the Administration’s plans to propose new regulations have been postponed).

²⁸² See *supra* note 269, at 1.

²⁸³ See *supra* note 272, at 5. For a recent legal critique of the proposed draft guidance, see Richard E. Glaze Jr., “*Rapanos* Guidance III: ‘Waters’ Revisited,” 42 *Environmental Law Reporter* 10118, 10130 (2012) (“Many of the positions reflected in the guidance seem to be reasonable interpretations of the CWA consistent with the views of the Supreme Court. Others, however, appear to go beyond, or to be inconsistent with, current law and might encounter difficulty when subjected to deference analysis.”).

²⁸⁴ See 76 Fed. Reg. 24479, 24480 (May 2, 2011) (“The agencies believe it is advisable to replace existing guidance documents interpreting *SWANCC* and *Rapanos* in order to implement the [Clean Water Act] in a manner that is consistent with those opinions, reflects the best available science, and recognizes recent field implementation experience.”).

²⁸⁵ For the December 2008 guidance, see *supra* note 269. For the 2011 draft proposed guidance, see *supra* note 272.

²⁸⁶ Justice Alito, by way of his recent concurring opinion in *Sackett v. Environmental Protection Agency*, called on Congress to act: “[r]eal relief requires Congress to do what it should have done in the first place: provide a reasonably clear rule regarding the reach of the Clean Water Act. . . . For 40 years, Congress has done nothing to resolve this critical ambiguity [in the meaning of the phrase ‘waters of the United States,’], and the EPA has not seen fit to promulgate a rule providing a clear and sufficiently limited definition of the phrase. 566 U.S. ___, 132 S.Ct. 1367, 1375 (2012) (Alito, J., concurring).

²⁸⁷ See discussion of the Supreme Court’s ruling in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* and other key cases in Chapter Two of this handbook.

²⁸⁸ Congress can act only when it has a constitutional basis for doing so. See generally Jay Austin & Bruce Myers, *Anchoring the Clean Water Act: Congress’s Constitutional Sources of Power to Protect the Nation’s Waters*, Environmental Law Institute White Paper, July 2007 (examining key constitutional provisions that can support comprehensive federal water protections).

²⁸⁹ See, e.g., *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, 531 U.S. 159, 172-74 (2001) (declining to address “significant constitutional questions” absent a clearer statement from Congress with respect to the challenged agency interpretation of the Clean Water Act’s reach); *Rapanos v. United States*, 547 U.S. 715, 737-38 (2006) (Scalia, J., plurality) (requiring “a clearer statement from Congress to authorize an agency theory of jurisdiction that presses the envelope of constitutional validity”); *id.* at 782-83, 776-77 (Kennedy, J., concurring in the judgment) (significant nexus test avoids “problematic applications” of the Clean Water Act from perspective of constitutional and federalism concerns).

²⁹⁰ H.R. 5088 (111th Congress), introduced Apr. 21, 2010 by Rep. J. Oberstar. Text available at <http://www.gpo.gov/fdsys/pkg/BILLS-111hr5088ih/pdf/BILLS-111hr5088ih.pdf>.

²⁹¹ E.g., S.787 (111th Congress), introduced Apr. 2, 2009 by Sen. R. Feingold, and text available at <http://www.gpo.gov/fdsys/pkg/BILLS-111s787rs/pdf/BILLS-111s787rs.pdf>; S.1870 (110th Congress), introduced July 25, 2007 by Sen. R. Feingold, and text available at <http://www.gpo.gov/fdsys/pkg/BILLS-110s1870is/pdf/BILLS-110s1870is.pdf>; H.R. 2421 (110th Congress), introduced May 22, 2007 by Rep. J. Oberstar, and text available at <http://www.gpo.gov/fdsys/pkg/BILLS-110hr2421ih/pdf/BILLS-110hr2421ih.pdf>.

²⁹² S. 2122 (112th Congress), introduced Feb. 16, 2012 by Sen. R. Paul. Text available at <http://www.gpo.gov/fdsys/pkg/BILLS-112s2122is/pdf/BILLS-112s2122is.pdf>.

²⁹³ See, e.g., Martin W. Doyle and Emily S. Bernhardt, “What is a stream?” 45 *Environmental Science & Technology* 354-59 (2011) (“Following the goals of the CWA, we review relevant stream science in terms of physical, chemical, and biological characteristics and processes.”).

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Environmental Law Institute

2000 L Street, N.W., Suite 620

Washington, D.C. 20036

Telephone: (202) 939-3800

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