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April 26, 2017

A Review of the Technical, Scientific, and Legal Basis of the WOTUS Rule

Committee on Environment and Public Works, United States Senate, One Hundred Fifteenth Congress, First Session

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Opening Statement

Ken Kopocis

Hearing before the Senate Committee on Environment and Public Works

April 26, 2017

Chairman Barrasso, Ranking Member Carper, thank you for the request to appear here today to discuss the Clean Water Rule, a rule issued jointly by the U.S. Environmental Protection Agency and the Department of the Army to clarify which waters are and are not protected by the Clean Water Act. I appear today in my personal capacity.

In 1972, Congress established the objective of the Clean Water Act, to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Congress made clear that this objective would be best achieved by controlling pollutant discharges at their source, and reemphasized that objective through the substantial amendments of 1977 and 1987 that tightened controls on pollutant discharges. Congress made water quality the heart of the statutory and regulatory program.

Clean water in adequate supply is essential to our existence. Whether illustrated by the drought in California or the lead contamination in Flint, Michigan, we have daily reminders that water is essential to life. Waters are also important to the environment in which we live. Rivers, lakes, ponds and wetlands supply and cleanse our drinking water, ameliorate storm surges, provide invaluable storage capacity for flood waters, and enhance our quality of life by providing essential habitat, myriad recreational opportunities, as well as important water supply and power generation benefits.

Consider these facts about the value of clean water to Americans:

- Manufacturing companies use nine trillion gallons of fresh water every year.
- 31 percent of all water withdrawals in the U.S. are for irrigation, highlighting the extent to which the nation's farmers depend on clean water.
- About 40 million anglers spend $45 billion annually to fish in U.S. waters.
- The beverage industry uses more than 12 billion gallons of water annually to produce products valued at $58 billion.
- About 60 percent of stream miles in the U.S. only flow seasonally or after rain, but are critically important to the health of downstream waters.

- Approximately 117 million people – one in three Americans – get their drinking water from public systems that rely on seasonal, rain-dependent, and headwater streams.

The Clean Water Rule was developed and issued by the two agencies to ensure that the Nation's waters could continue to provide these essential benefits, making waters better protected from pollution and destruction by having the scope of the Clean Water Act easier to understand, more predictable, and more consistent with the law and peer-reviewed science.

The Supreme Court has considered the scope of waters protected by the Clean Water Act from pollution and destruction three times – *U.S.* v. *Riverside Bayview Homes* in 1985, *Solid Waste Agency of Northern Cook County* v. *Army Corps of Engineers* in 2001, and *Rapanos* v. *U.S.* in 2006. In each of those cases, in every opinion written by the justices, whether it was 9 – 0 in *Riverside Bayview*, 5 – 4 in *SWANCC*, or 4 – 1 – 4 in *Rapanos*, every justice has supported that the Clean Water Act term "navigable waters" is broader than the traditional understanding of that term. The Clean Water Act applies to waters beyond those considered to be traditionally navigable.

The Clean Water Rule was developed following the U.S. Supreme Court decisions usually referred to simply as *SWANCC* and *Rapanos*.

In *SWANCC*, a majority of the Court invalidated the agencies' practice of using the presence of migratory birds as a sole basis for establishing Clean Water Act jurisdiction, and the agencies complied. The Court did not invalidate any aspect of the agencies' regulations.

In *Rapanos*, the Court considered two consolidated cases involving wetlands that did not immediately abut traditionally navigable waters. In *Rapanos*, no opinion could gather a majority, and the nine justices wrote five separate opinions. The confusion evident on the Court carried over into the regulatory responsibilities of the two agencies and resulted in the George W. Bush Administration issuing guidance in 2003 and 2008 to reconcile the several opinions of the Court with the existing regulations defining the scope of the Clean Water Act. Again, the agencies' regulations were left intact by the Court.

Following the confusion generated by *Rapanos*, interested parties demanded that the agencies take action to clarify which waters would have their quality protected by the Clean Water Act, and equally important which would not. Every interest group that approached the agencies, and this includes the agriculture community, the property development community, the environmental community, the resource extraction community, the hunting and fishing community, mayors, governors and Federal and State legislators on both sides of the aisle, and countless others recommended that the agencies take action to address the post-*Rapanos* confusion. No one argued for the agencies to do nothing.

To respond to these stakeholder requests, the agencies spent several years developing the Rule. Its development was subject to countless conversations with outside groups, including all of those I mentioned previously – State, local and Federal interests in the public and private sectors. When the agencies considered issuing additional guidance as an interim measure, that effort had both strong support and strong criticism. The agencies abandoned that effort in pursuit of the option of formal rule-making.

The Clean Water Rule clarifies the jurisdiction of the Clean Water Act and would reduce the costly and time-consuming case-specific significant nexus analysis that resulted from the *Rapanos* decision. The Rule interprets the Clean Water Act, it does not expand it. It does so consistent with the Act's legislative history and the court cases that followed the Act's enactment.

The Rule is supported by the best available peer-reviewed science on the relationship of waters, their connectivity, and the impacts of protecting water quality or not protecting water quality on downstream and adjacent waters. EPA's Office of Research and Development prepared an exhaustive synthesis of peer-reviewed science on how waters are connected to each other and how they impact downstream waters. This science report was also peer-reviewed by EPA's independent Science Advisory Board and subject to public comment. The science report informed the agencies actions in response to the policy guidance provided by the Supreme Court in both the *SWANCC* and *Rapanos* decisions – how best to consider the significant nexus between upstream and downstream waters.

The final science report provides several key conclusions based on review of the peer-reviewed scientific literature:

1. All tributary streams, including perennial, intermittent, and ephemeral streams, are physically, biologically, and chemically connected to downstream rivers and this connection influences the integrity of downstream rivers.

2. Wetlands and open waters in floodplains and riparian areas are physically, chemically and biologically connected with downstream rivers and influence the ecological integrity of such rivers.

3. Non-floodplain wetlands and open waters (i.e., isolated waters) provide many functions that benefit downstream water quality and ecological integrity.

4. The connectivity of streams, wetlands and other surface waters, taken as a whole, to downstream waters occurs along a continuum from highly connected to highly isolated – but these variations in the degree of connectivity are critical to the ecological integrity and sustainability of downstream waters.

5. The critical contribution of upstream waters to the chemical, physical, and biological integrity of downstream waters results from the accumulative contribution of similar waters in the same watershed and in the context of their function considered over time.

Because of the Clean Water Rule's greater clarity and specificity compared to the rule it replaced, no longer would many waters, such as some tributaries, adjacent waters, ditches and wetlands, need a level of individual analysis to determine whether there was a significant nexus to a downstream water that *Rapanos* required and the old regulatory definition did not provide. Because of the new exclusions in the Clean Water Rule, people would for the first time be able to read the Rule and better know that a water body or feature was not subject to the Clean Water Act without the need for an individual analysis.

The Clean Water Rule continues to apply the protections of the Clean Water Act to traditionally navigable waters, interstate waters, the territorial seas, impoundments of otherwise jurisdictional waters, tributaries, and adjacent wetlands. The Clean Water Rule deletes the jurisdiction of the Clean Water Act over waters "the use, degradation or destruction of which could affect interstate or foreign commerce" and replaces it with the significant nexus analysis first established in *SWANCC* and carried forward in *Rapanos* by Justice Kennedy. The Rule also establishes transparency in the Rule in how the agencies will make significant nexus determinations instead of leaving those decisions within the discretion of the agency employee.

The Clean Water Rule carries forward the jurisdictional exclusions for waste treatment systems and prior converted cropland. It also adds new regulatory exclusions such as for certain ditches, artificially irrigated areas, farm and stock water ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, cooling ponds, reflecting and swimming pools, ornamental waters, water-filled depressions incidental to mining or construction, erosional features and grassed waterways, groundwater including tile drains, stormwater features, wastewater recycling and groundwater recharge.

For greater detail on the inclusions and exclusions, the complete text of the Clean Water Rule is attached as an appendix to this statement.

The Clean Water Rule is a carefully considered rule that was developed with unprecedented public engagement and comment. The Rule applies the law as written by Congress and interpreted by the Supreme Court; it relies upon the best available peer-reviewed science to support its scope; and it is the product of over 40 years of technical expertise of the U.S. EPA and the Department of the Army working with the Corps of Engineers in administering the Clean Water Act.

Unfortunately, the Rule's benefits of clarity, predictability and consistency have been put on hold by the Sixth Circuit, but that will ultimately be resolved. I personally am very aware of the controversy surrounding the scope of the Clean Water Act, but I also believe it is a disservice

to the public that the current administration has indicated that it will undertake a new rule-making to replace the Clean Water Rule. That effort is guaranteed to continue the post-*Rapanos* confusion for many, many years to come.

The Clean Water Act is often referred to as our most effective environmental law, and it has resulted in great improvements in water quality. However, the work is far from finished – State generated water quality reports indicate hundreds of impaired waters in need of reduced pollution and increased protection. Continuing the confusion on how to protect water quality does not advance these joint efforts at the State and Federal level. In my thirty-plus years in water law, I have never heard been told that the water in our rivers, lakes, streams and ponds is too clean, that there are too many healthy fish to catch and eat, that our drinking water is too clean and abundant, or that we need more beach closures due to pollution. The Clean Water Rule advances the cause.

Thank you again, I am pleased to answer any questions you may have.

APPENDIX to Statement of Ken Kopocis

The following definition was published on June 29, 2015 by EPA and the Department of the Army as the Clean Water Rule. On October 9, 2015, the 6th Circuit Court of Appeals stayed the use of the revised rule. The revised rule is reproduced below.

Code of Federal Regulations

(Revised 2015 by Clean Water Rule, currently stayed by 6th Circuit.)

Title 40 - Protection of Environment. CHAPTER I - ENVIRONMENTAL PROTECTION AGENCY (CONTINUED). SUBCHAPTER D - WATER PROGRAMS. PART 122 - EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM. Subpart A - Definitions and General Program Requirements.

Authority: The Clean Water Act, 33 U.S.C. 1251 *et seq*.

Source: 80 FR 37054, June 29, 2015

§ 122.2 Definitions.

The following definitions apply to parts 122, 123, and 124. Terms not defined in this section have the meaning given by CWA. When a defined term appears in a definition, the defined term is sometimes placed in quotation marks as an aid to readers.

* * * * *

Waters of the United States or *waters of the U.S.* means:

(1) For purposes of the Clean Water Act, 33 U.S.C. 1251 et seq. and its implementing regulations, subject to the exclusions in paragraph (2) of this definition, the term "waters of the United States" means:

(i) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) All interstate waters, including interstate wetlands;

(iii) The territorial seas;

(iv) All impoundments of waters otherwise identified as waters of the United States under this section;

(v) All tributaries, as defined in paragraph (3)(iii) of this section, of waters identified in paragraphs (1)(i) through (iii) of this section;

(vi) All waters adjacent to a water identified in paragraphs (1)(i) through (v) of this definition, including wetlands, ponds, lakes, oxbows, impoundments, and similar waters;

(vii) All waters in paragraphs (1)(vii)(A) through (E) of this definition where they are determined, on a case-specific basis, to have a significant nexus to a water identified in paragraphs (1)(i) through (iii) of this definition. The waters identified in each of paragraphs (1)(vii)(A) through (E) of this definition are similarly situated and shall be combined, for purposes of a significant nexus analysis, in the watershed that drains to the nearest water identified in paragraphs (1)(i) through (iii) of this definition. Waters identified in this paragraph shall not be combined with waters identified in paragraph (1)(vi) of this definition when performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (1)(vi), they are an adjacent water and no case-specific significant nexus analysis is required.

(A) Prairie potholes. Prairie potholes are a complex of glacially formed wetlands, usually occurring in depressions that lack permanent natural outlets, located in the upper Midwest.

(B) Carolina bays and Delmarva bays. Carolina bays and Delmarva bays are ponded, depressional wetlands that occur along the Atlantic coastal plain.

(C) Pocosins. Pocosins are evergreen shrub and tree dominated wetlands found predominantly along the Central Atlantic coastal plain.

(D) Western vernal pools. Western vernal pools are seasonal wetlands located in parts of California and associated with topographic depression, soils with poor drainage, mild, wet winters and hot, dry summers.

(E) Texas coastal prairie wetlands. Texas coastal prairie wetlands are freshwater wetlands that occur as a mosaic of depressions, ridges, intermound flats, and mima mound wetlands located along the Texas Gulf Coast.

(viii) All waters located within the 100-year floodplain of a water identified in paragraphs (1)(i) through (iii) of this definition and all waters located within 4,000 feet of the high tide line or ordinary high water mark of a water identified in paragraphs (1)(i) through (v) of this definition where they are determined on a case-specific basis to have a significant nexus to a water identified in paragraphs (1)(i) through (v) of this definition. For waters determined to have a significant nexus, the entire water is a water of the United States if a portion is located within the 100-year floodplain of a water identified in (1)(i) through (iii) of this definition or within 4,000 feet of the high tide line or ordinary high water mark. Waters identified in this paragraph shall not be combined with waters identified in paragraph (1)(vi) of this definition when

performing a significant nexus analysis. If waters identified in this paragraph are also an adjacent water under paragraph (1)(vi), they are an adjacent water and no case-specific significant nexus analysis is required.

(2) The following are not “waters of the United States” even where they otherwise meet the terms of paragraphs (1)(iv) through (viii) of this definition.

(i) Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the Clean Water Act. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. [See Note 1 of this section.]

(ii) Prior converted cropland. Notwithstanding 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.

(iii) The following ditches:

(A) Ditches with ephemeral flow that are not a relocated tributary or excavated in a tributary.

(B) Ditches with intermittent flow that are not a relocated tributary, excavated in a tributary, or drain wetlands.

(C) Ditches that do not flow, either directly or through another water, into a water identified in paragraphs (1)(i) through (iii) of this definition.

(iv) The following features:

(A) Artificially irrigated areas that would revert to dry land should application of water to that area cease;

(B) Artificial, constructed lakes and ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, fields flooded for rice growing, log cleaning ponds, or cooling ponds;

(C) Artificial reflecting pools or swimming pools created in dry land;

(D) Small ornamental waters created in dry land;

(E) Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand, or gravel that fill with water;

(F) Erosional features, including gullies, rills, and other ephemeral features that do not meet the definition of tributary, non-wetland swales, and lawfully constructed grassed waterways; and

(G) Puddles.

(v) Groundwater, including groundwater drained through subsurface drainage systems.

(vi) Stormwater control features constructed to convey, treat, or store stormwater that are created in dry land.

(vii) Wastewater recycling structures constructed in dry land; detention and retention basins built for wastewater recycling; groundwater recharge basins; percolation ponds built for wastewater recycling; and water distributary structures built for wastewater recycling.

(3) In this definition, the following terms apply:

(i) Adjacent. The term adjacent means bordering, contiguous, or neighboring a water identified in paragraphs (1)(i) through (v) of this definition, including waters separated by constructed dikes or barriers, natural river berms, beach dunes, and the like. For purposes of adjacency, an open water such as a pond or lake includes any wetlands within or abutting its ordinary high water mark. Adjacency is not limited to waters located laterally to a water identified in paragraphs (1)(i) through (v) of this definition. Adjacent waters also include all waters that connect segments of a water identified in paragraphs (1)(i) through (v) or are located at the head of a water identified in paragraphs (1)(i) through (v) of this definition and are bordering, contiguous, or neighboring such water. Waters being used for established normal farming, ranching, and silviculture activities (33 U.S.C. 1344(f)) are not adjacent.

(ii) Neighboring. The term neighboring means:

(A) All waters located within 100 feet of the ordinary high water mark of a water identified in paragraphs (1)(i) through (v) of this definition. The entire water is neighboring if a portion is located within 100 feet of the ordinary high water mark;

(B) All waters located within the 100-year floodplain of a water identified in paragraphs (1)(i) through (v) of this definition and not more than 1,500 feet from the ordinary high water mark of such water. The entire water is neighboring if a portion is located within 1,500 feet of the ordinary high water mark and within the 100-year floodplain;

(C) All waters located within 1,500 feet of the high tide line of a water identified in paragraphs (1)(i) or (iii) of this definition, and all waters within 1,500 feet of the ordinary high water mark of the Great Lakes. The entire water is neighboring if a portion is

located within 1,500 feet of the high tide line or within 1,500 feet of the ordinary high water mark of the Great Lakes.

(iii) Tributary and tributaries. The terms tributary and tributaries each mean a water that contributes flow, either directly or through another water (including an impoundment identified in paragraph (1)(iv) of this definition), to a water identified in paragraphs (1)(i) through (iii) of this definition that is characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark. These physical indicators demonstrate there is volume, frequency, and duration of flow sufficient to create a bed and banks and an ordinary high water mark, and thus to qualify as a tributary. A tributary can be a natural, man-altered, or man-made water and includes waters such as rivers, streams, canals, and ditches not excluded under paragraph (2) of this definition. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and an ordinary high water mark can be identified upstream of the break. A water that otherwise qualifies as a tributary under this definition does not lose its status as a tributary if it contributes flow through a water of the United States that does not meet the definition of tributary or through a non-jurisdictional water to a water identified in paragraphs (1)(i) through (iii) of this definition.

(iv) Wetlands. The term wetlands means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

(v) Significant nexus. The term significant nexus means that a water, including wetlands, either alone or in combination with other similarly situated waters in the region, significantly affects the chemical, physical, or biological integrity of a water identified in paragraphs (1)(i) through (iii) of this definition. The term “in the region” means the watershed that drains to the nearest water identified in paragraphs (1)(i) through (iii) of this definition. For an effect to be significant, it must be more than speculative or insubstantial. Waters are similarly situated when they function alike and are sufficiently close to function together in affecting downstream waters. For purposes of determining whether or not a water has a significant nexus, the water's effect on downstream (1)(i) through (iii) waters shall be assessed by evaluating the aquatic functions identified in paragraphs (3)(v)(A) through (I) of this definition. A water has a significant nexus when any single function or combination of functions performed by the water, alone or together with similarly situated waters in the region, contributes significantly to the chemical, physical, or biological integrity of the nearest water identified in paragraphs (1)(i) through (iii) of this definition. Functions relevant to the significant nexus evaluation are the following:

(A) Sediment trapping,

(B) Nutrient recycling,

(C) Pollutant trapping, transformation, filtering, and transport,

(D) Retention and attenuation of flood waters,

(E) Runoff storage,

(F) Contribution of flow,

(G) Export of organic matter,

(H) Export of food resources, and

(I) Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species located in a water identified in paragraphs (1)(i) through (iii) of this definition.

(vi) Ordinary high water mark. The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

(vii) High tide line. The term high tide line means the line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Testimony of Collin O'Mara, President and CEO of the National Wildlife Federation

Before the Environment and Public Works Committee of the United States Senate
Reviewing the Technical, Scientific, and Legal Basis of the Waters of the U.S. Rule
April 26, 2017

On behalf of the National Wildlife Federation, our six million members and supporters—including millions of conservation-minded hunters, anglers, and outdoor enthusiasts—and more than fifty state and territorial affiliates, we thank you for the opportunity to testify before your committee and submit this written testimony on an issue of great importance to our members and the wildlife they champion: Clean Water. The National Wildlife Federation has championed clean and healthy rivers and streams since our founding in 1936. Conserving our Nation's wetlands, streams, and rivers for fish, wildlife, and communities is at the core of our mission. We worked closely with Senator Muskie to pass the Clean Water Act in 1972 and have worked hard to fulfill its promise of clean water for all Americans ever since. We believed then—and still believe today—that the best way to improve water quality is to prevent pollution at its source, which is much cheaper than trying to remove pollution downstream. Since the *SWANCC* and *Rapanos* U.S. Supreme Court decisions issued in 2001 and 2006, respectively, we have been actively engaged in the effort to clarify the definition of "Waters of the United States" that underpins the 1972 Clean Water Act. We appreciate this opportunity to submit testimony reviewing the strong technical, scientific, legal, and public support for the Environmental Protection Agency ("EPA") and the Army Corps of Engineers ("Corps") Clean Water Rule defining "Waters of the United States" under the Clean Water Act.

We respectfully offer nine key points about the Clean Water Rule for the Committee's consideration:

1. The Clean Water Rule Responds to – and Is Consistent With – the Supreme Court's Direction in *SWANCC* and *Rapanos*.
2. The Final Clean Water Rule Clarifies and Limits -- But *Does Not Expand* – the Historic Scope of Clean Water Act Jurisdiction.
3. The Clean Water Rule is based on a state-of-the-art review of the science, incorporating the basic principles and findings of connectivity science in order to meet the goals of the Clean Water Act.
4. The Clean Water Rule Strengthens the Clean Water Act's Federal-State Cooperative Federalism Framework and Empowers States to Better Protect State Waters within this Framework
5. The Final Clean Water Rule Addresses Many of the Concerns Raised by State, Agricultural, and Small Business Stakeholders during the Extended and Rigorous Rulemaking Process.
6. The Clean Water Rule Proactively Protects Water Supplies and Reduces the Need for More

Expensive Downstream Pollution Removal Investments.

7. The Clean Water Rule's Protection of Headwater Streams and Wetlands is Essential to the Conservation of Thousands of Aquatic Species That Face Potential Extinction.
8. The Clean Water Rule Fosters Strong Local Economies and Millions of Jobs that Depend upon Clean and Abundant Water and Healthy Wetlands and Waterways.
9. The Clean Water Rule, like the Clean Water Act, Enjoys Widespread, Bi-Partisan Support.

Background: The goal of the 1972 Clean Water Act was to "restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters" to ensure fishable, swimmable, drinkable waters. This has historically been a bipartisan goal and we believe it still is—and must be. For more than 40 years, driven by the Clean Water Act, we have invested in and shared responsibility for the cleanup of our rivers, streams, and iconic lakes and bays - from Puget Sound and Oregon's Williamette River to the Platte River that flows from Wyoming and Oregon through Nebraska. From the Buffalo National River in the Arkansas Ozarks to Lake Michigan, and the Chesapeake and Delaware Bays.

Whereas capital investments in water infrastructure are essential to make water supplies safe to drink and remove pollution from wastewater, the Clean Water Act is the best tool our nation has to proactively protect our water resources and reduce our long-term capital requirements. Clearly defining the "Waters of the United States" within the Act's safeguards is essential for the Act to work effectively, which is why EPA Administrators serving Republican Presidents, from Russell Train (1973-1977) to William Reilly (1989-1993), strongly supported broad protections for wetlands and streams. Republican leader Senator Howard Baker of Tennessee echoed these words of support when the Clean Water Act was amended in 1977: "[t]he once seemingly separate types of aquatic systems are, we now know, interrelated and interdependent. We cannot expect to preserve the remaining qualities of our water resources without providing appropriate protection for the *entire resource*."[1] In 1986, the Reagan administration developed the inclusive definition of waters of the United States[2] and President George H.W. Bush confirmed "no net loss" of wetlands as his administration policy in January, 1989.

Members of this Committee have historically understood the importance—and the challenges—of clearly and carefully defining the Waters of the United States in a manner that ensures the health of our critical water resources while also respecting landowners, safeguarding downstream communities, restoring fish and wildlife populations, and protecting water resources that are the foundation for a robust economy.

The Clean Water Rule was developed by the EPA and the Army Corps of Engineers after several years of stakeholder engagement and after a state-of-the-art evaluation of the science on the connectivity of wetlands and headwater streams. Sportsmen, conservation groups, and many other stakeholders submitted over one million public comments that helped to shape the final rule, which was broadly celebrated for restoring guaranteed protections to headwater streams and millions of acres of wetlands previously at greater risk of being polluted or destroyed because of legal

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[1] 123 Cong. Rec. 26,718 (Aug. 4, 1977) (emphasis added).

[2] See http://www2.epa.gov/sites/production/files/2015-06/documents/epa-hq-ow-2011-0880-20862.pdf at 37056.

confusion. We believe the rule that was developed was legally sound, scientifically supported, and represented an appropriate jurisdictional balance consistent with the Clean Water Act.

Key point: The National Wildlife Federation strongly encourages the Committee to support the Clean Water Rule. To rescind the Rule and instead use former Supreme Court Justice Antonin Scalia's plurality opinion in *Rapanos v. United States* as a basis for revision could harm the drinking water supplies of more than 117 million Americans by leaving nearly as many as 60% of U.S. streams without the protection of the Clean Water Act. At least 20 million acres of wetlands, many of which provide essential water quality, flood protection, and fish and wildlife habitat, are at risk as well. In fact, the rate of wetlands loss increased by 140% during the 2004-2009 period – the years immediately following the Supreme Court decisions. This is the first documented acceleration of wetland loss since the Clean Water Act was enacted more than 40 years ago during the Nixon administration. Such a rollback of stream and wetland protections will cause irreparable harm for fish and wildlife, hunting and fishing, the outdoor recreation economy, and clean drinking water.

Economic Benefits: Clean water is not simply good for the environment, it is essential for a thriving economy. As we document in our statement below, this rule clarifying and restoring Clean Water Act protections fosters strong local economies and millions of jobs. Healthy wetlands and streams are economic engines for local recreation-based economies. Every year 47 million Americans head to the field to hunt or fish. For example, the American Sportfishing Association reports that anglers generated more than $201 billion in total economic activity in 2011, supporting more than 1.5 million jobs—more than 30% of the total $646 billion outdoor economy. Further, in some rural, mountain communities, river recreation and related activities generate the largest share of the local economy. Indeed, throughout the headwaters states, river recreation, including boating, fishing and wildlife watching, represents billions of dollars in commerce. These fishing and river guides, outfitters, bait shops, hotels and coffee shops are true small businesses that form the backbone of many rural communities. And they depend upon clean water and healthy wetlands, lakes, and streams.

Before providing detail on our nine key points, I would like to share with the committee a bit of my experience as a former Secretary of Natural Resources of the State of Delaware related to water quality and the Clean Water Act. The State of Delaware may have limited landmass, but the challenges we face in Delaware in keeping our water resources clean, healthy, and productive—and the importance of a strong Clean Water Act as a foundation for our state efforts—are similar to those faced in states across the country. Right now more than 90% of Delaware waterways fail to meet either drinking, swimming, or fishing standards. Further, more than $100 million in additional annual investment is needed if Delaware is to achieve its water quality and flood abatement goals, which have been challenging to achieve due to toxic legacy pollution, increased stormwater runoff pollution, and pollution originating beyond Delaware's borders.

Here are a few takeaways from my home state:

- Delaware is primarily a rural state, sharing the Delmarva Peninsula with Maryland and Virginia, with hundreds of miles of headwater streams and creeks that flow (at times through shallow groundwater) either to the Chesapeake Bay on the west, the Delaware

River and estuary to the north and east, or the Inland bays associated with the Delaware beaches to the southeast.

- As in many states, the health of our economy and our residents is directly linked to the health of our natural resources. To protect the health and welfare of our Delaware residents, we must foster economic productivity while also protecting water supplies and waterways crucial to the health and welfare of all Delawareans, as well as to businesses that depend on clean water. Agriculture, including poultry production, is a key industry in Delaware, as are commercial shellfishing and manufacturing—all of which depend upon abundant clean water. Delaware also benefits from a multibillion dollar tourism economy that is fueled by healthy waterways and beaches, including a robust wildlife-based recreation economy with an estimated $325 million spent annually on wildlife recreation in Delaware annually, including $104 million on fishing alone. More than 344,000 Delaware residents and visitors participated in these recreational activities throughout the state. Further, Delaware's thriving craft beer brewing industry also relies on clean water and contributes almost $200 million to our economy every year and support more than 1,800 jobs.

- To protect Delaware's water resources, we must continue to work to reduce pollution from key sectors including development, agriculture, and industrial operations, which discharge runoff pollution into Delaware's smaller streams that more than 281,400 Delawareans (30%) depend upon for their drinking water.

- EPA estimates that 55% of Delaware's streams are headwater streams with no other streams flowing into them, and that only 11% do not flow year-round. These smaller streams are among those for which the extent of Clean Water Act protections has been questioned, particularly based on the *Rapanos* plurality jurisdictional test.

- Many of the "ditches" found in Delaware are really streams that have been relocated, straightened, enlarged or otherwise modified by humans at some point over the past 200 years. These ditch and stormwater systems connect non-navigable streams and adjacent wetlands to downstream waters, conducting pollutants downstream into the Chesapeake, Delaware, and Inland Bays.

- Commenting in support of the Clean Water Rule in 2014, former Secretary of Natural Resources and Environmental Control David Small said: "Delaware needs clear and consistent support from the EPA and Corps that irreplaceable Delmarva Bays are protected by the CWA…Delaware has authority to only regulate tidal wetlands and is dependent upon the Corps to administer CWA Section 404 to regulate non-tidal wetlands. There are diminishing resources in the Corps Philadelphia District in recent years which affects the regulatory application and enforcement of Section 404 in Delaware. These necessary resources are essential to protecting non-tidal wetlands and waters for the people of Delaware."

- Delaware has consistently supported an clear, consistent definition of Waters of the U.S. Delaware joined 34 other states in 2006 to urge the Supreme Court to uphold strong federal

clean water protections and in 2003 opposed Bush administration efforts to roll back protections for small streams and wetlands. DNREC's 2014 rulemaking comments supporting the Clean Water Rule added: "The proposed rule affects the implementation of CWA Sections 303(d), 319, 402 and 404, and states need direction, clarification and consistency within the proposed rule to administer these water authorities."

Additional Background on Key Points:

1. **<u>The Clean Water Rule Responds to – and Is Consistent With – the Supreme Court's Direction in *SWANCC* and *Rapanos*</u>.**

The Clean Water Rule revises the longstanding definition of "waters of the United States" subject to the Clean Water Act in response to the Supreme Court's decisions in *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers ("SWANCC")*,[3] and *Rapanos v. United States.*[4] The Environmental Protection Agency (EPA) and the Army Corps of Engineers (Corps) took on this historic rulemaking because at least two of the Supreme Court Justices clearly called for it in their *Rapanos* concurring opinions: Chief Justice Roberts[5] and Justice Breyer,[6] and a majority in *Rapanos* embraced the role of expert agency regulations to clarify which waters are – and are not – "waters of the United States."

The 2001 *SWANCC* decision was narrow. It simply precluded the Corps from asserting jurisdiction over certain ponds based solely on their use by migratory birds. It did not overturn any aspect of the existing waters of the U.S. regulatory definition, including the provision protecting waters beyond those that qualify as tributaries or adjacent wetlands. In 2006, in *Rapanos,* the Supreme Court issued a fractured (4-1-4) decision involving wetlands adjacent to non-navigable tributaries of traditional navigable waters. Importantly, the Court issued five opinions, none of which garnered a majority. In the ensuing litigation implementing the Court's opinions, Justice Kennedy's opinion establishing the "significant nexus" analysis has been widely accepted by the U.S. Courts of Appeals. Justice Kennedy's "significant nexus" test requires a showing – through regulation or case-by-case review – that the ecological linkages between smaller or more remote waterbodies and navigable waters, "alone or in combination," must be more than "speculative or insubstantial."

The Clean Water Rule closely tracks Kennedy's pivotal significant nexus test, grounding its definition of which waters are protected in science-based findings of significant nexus to traditionally navigable and interstate waters. The Federal Register preambles to the proposed and final rules include an extensive legal analysis documenting the rule's reliance on the significant nexus test. **As a binding rule, promulgated through a rigorous, transparent, and extended rulemaking process, the rule's revised definition of "waters of the United States" will provide greater certainty and consistency in jurisdictional determinations for landowners, federal and state agency field staff, and the courts. It will also ensure that longstanding clean water**

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[3] 531 U.S.159 (2001).
[4] 126 S. Ct. 2208 (2006).
[5] 547 U.S. at 757-58.
[6] 547 U.S. at 812.

protections continue to safeguard millions of wetland acres and stream miles that have been in legal limbo for more than a decade.

2. <u>The Final Clean Water Rule Clarifies and Limits -- But *Does Not Expand* – the Historic Scope of Clean Water Act Jurisdiction</u>.

The final rule clarifies and definitively restores Clean Water Act protection to two major categories of waters, while drawing clarifying and limiting boundaries:

1. Tributaries to traditionally navigable and interstate waters and the territorial seas. For example, intermittently-flowing headwater streams that have a defined bed and bank and ordinary high water mark, and flow to a traditionally navigable or interstate water body; and

2. Wetlands, lakes, and other water bodies located adjacent to these tributaries (including those within the 100-yr floodplain up to a maximum distance of 1,500 ft.).

Based on a careful review of the wetland science and the "significant nexus" test, the final rule also authorizes protections for waters that are "similarly situated" and located beyond river floodplains when they significantly affect downstream waters' condition. As independent scientific advisors recommended, the rule also finds that specified wetlands -- prairie potholes in the Dakotas, western vernal pools in California, Carolina and Delmarva bays and pocosins along the Atlantic coastal plain, and Texas coastal prairie wetlands along the Gulf of Mexico -- are "similarly situated" in how they provide fish and wildlife habitat, especially for waterfowl, important flood storage and drought resistance, and critical pollution filtration..

While these clarifications remove uncertainty, and better protect many wetlands and streams that have been at risk for the last decade, the fact is that the final Clean Water Rule actually *narrows* the historic scope of Clean Water Act jurisdiction, excluding protections for some wetlands and other waters protected for almost 30 years prior to 2001. Indeed, in our view, a couple of the 2015 Clean Water Rule's waters of the U.S exclusions go too far, removing protections for wetlands and other waters that the science indicates are likely to have a significant nexus to downstream traditionally navigable or interstate waters.

First and foremost, the rule deletes the pre-existing and longstanding "other waters provision that provided Clean Water Act jurisdiction over many types of waters based on their potential effect on interstate commerce. Given the breadth of the federal commerce clause power, and the Clean Water Act legislative intent to regulate to the full extent of that power, this provision provided for Clean Water Act coverage for over millions of wetland acres protected for almost 30 years prior to 2001. In response to the Court's consideration of waters' ecological links to downstream waters, EPA and the Corps deleted this section and instead expressly linked all jurisdictional "waters of the U.S." determinations to science-based findings of significant nexus to downstream waters. As a result, many of the intrastate, non-navigable, geographically "isolated" wetlands, lakes, and ponds previously covered by the Clean Water Act regulations will no longer be covered under the final Clean Water Rule.

Second, the definition of "waters of the U.S." includes – for the first time -- a clear definition

of "tributary" that both clarifies and limits Clean Water Act jurisdiction over streams, ditches, and other tributaries. To be guaranteed protection as a tributary, a waterway must have a bed, bank, and ordinary high water mark. To further clarify what is *not* a protected tributary, the final rule expressly excludes – again for the first time – several types of ditches, as well as gullies, rills, non-wetland swales, and lawfully constructed grassed waterways.

In further response to concerns from agricultural and water treatment and delivery sectors, and in addition to existing exemptions for prior converted cropland and waste treatment systems, **the final rule also explicitly excludes from the definition of waters of the U.S. other water features in dry land, including artificially irrigated areas, stormwater control features and wastewater recycling systems**.

In addition, the final rule adds physical and measurable distance limits to define adjacent waters, further narrowing jurisdiction and excluding wetlands and other waterbodies previously covered by the Clean Water Act.

And, of course, the final rule does not alter the Clean Water Act provisions generally excluding several activities from applicable permitting requirements:

- Common farming and ranching practices, including "**plowing, cultivating, seeding, minor drainage, harvesting** for the production of food, fiber, and forest products;"
- "Construction or maintenance of **farm or stock ponds or irrigation ditches, or the maintenance of drainage ditches**;"
- "**Agricultural stormwater discharges and return flows from irrigated agriculture**;"
- "Construction of **temporary sediment basins** on a construction site;" and
- "Construction or maintenance of **farm or forest roads or temporary roads for moving mining equipment.**"

3. The Clean Water Rule is based on a state-of-the-art review of the science, incorporating the basic principles and findings of connectivity science in order to meet the goals of the Clean Water Act.

Closely tracking Justice Kennedy's pivotal significant nexus test, the Clean Water Rule definition of which waters are protected is grounded in the agencies' science-based findings of significant nexus to traditionally navigable and interstate waters and EPA's Connectivity Report, *The Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence*.[7] Below are excerpted and summarized some of the key principles and findings of wetland and stream scientists derived from the Connectivity Report that form the scientific foundation for the Clean Water Rule. *See* Connectivity Report; Scientists Letter to the Chair and Ranking Member of the Senate Committee on Environment and Public Works, Subcommittee on Fisheries, Water, and Wildlife *re: Scientists Strongly Oppose S.1140, Legislation Undermining Needed Protections for the Nation's Streams, Wetlands, and Other Waters*, dated May 18, 2015;

[7] *See* *https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=296414&CFID=56176401&CFTOKEN=47329782*

and the Amicus Curiae Brief of Dr. M. Siobhan Fennessy, Dr. Carol A. Johnston, Dr. Marinus L. Otte, Dr. Margaret Palmer, Dr. James E. Perry, Professor Charles Simenstad, Dr. Benjamin R. Tanner, Dr. Dan Tufford, Dr. R. Eugene Turner, Dr. Kirsten Work, Dr. Scott C. Yaich, and Dr. Joy B. Zedler in Support of Upholding the Clean Water Rule in *Murray Energy Corporation et al v. U.S EPA, et al* (6th Cir. January 20, 2017).

Rivers are networks, and their downstream navigable portions are inextricably linked to small headwaters just as fine roots are an essential part of the root structure of a tree or our own circulatory system is dependent on the function of healthy capillaries. Longstanding and robust scientific research (like those studies included in EPAs Connectivity Report) has demonstrated that ecological processes in navigable rivers reflect what is occurring in their headwaters as well as in associated geographically isolated wetlands, floodplains, and tributaries.

A sizable portion of a river network is in intermittent and headwater streams. In arid states such as Arizona, Utah, and Colorado, from 71 to 96% of stream miles have been classified as ephemeral or intermittent. Intermittent streams are also significant in states that receive more rainfall. In Alabama, 80% of stream miles in the National Forests are considered intermittent because they go dry during late summer or autumn; intermittent streams in Michigan comprise 48% of the length of stream channels in the state. These examples illustrate the extent of intermittent streams in river networks throughout the Nation.

As the Science Advisory Board (SAB) concluded from the 2014 *Connectivity Report:*

> **There is strong scientific evidence to support the EPA's proposal to include all tributaries within the jurisdiction of the Clean Water Act. Tributaries, as a group, exert strong influence on the physical, chemical, and biological integrity of downstream waters, even though the degree of connectivity is a function of variation in the frequency, duration, magnitude, predictability, and consequences of physical, chemical and biological processes.**

Small streams and wetlands contribute to the physical integrity of navigable rivers – they help retain water during storms and can decrease the intensity of floods. They also help recharge groundwater and other sources of water for drinking, irrigation, and industry.

Small streams and wetlands also contribute to the chemical integrity of navigable rivers –they help reduce contaminants and help with nutrient removal. For example, Delmarva bay wetlands help protect water quality and improve functions for water that flows through them to the Chesapeake Bay.

Small streams and wetlands contribute to the biological integrity of navigable rivers. They supply food resources to riparian and downstream ecosystems. Small streams are a refuge at critical life history stages or during critical times of the year for many fish species. They also serve as vital spawning and nursery habitats for many fish species including many prized sport fishes. Small streams and wetlands also provide critical habitat for a number of species.

As the SAB concluded from the 2014 *Connectivity Report:*

> **The available science supports the EPA's proposal to include adjacent waters and wetlands as waters of the United States. This is because adjacent waters and wetlands have a strong influence on the physical, chemical, and biological integrity of navigable waters.**

The SAB also advised EPA:

> **The available science, however, shows that groundwater connections, particularly via shallow flow paths in unconfined aquifers, are critical in supporting the hydrology and biogeochemical functions of wetlands and other waters. Groundwater also connects waters and wetlands that have no visible surface connections.**

The SAB also concluded:

> **The scientific literature has established that "other waters" can influence downstream waters, particularly when considered in aggregate. Thus, it is appropriate to define "other waters" as waters of the United States on a case-by-case basis, either alone or in combination with similarly-situated waters in the same region.**

The SAB further concluded:

> **There is also adequate scientific evidence to support a determination that certain subcategories and types of "other waters" in particular regions of the United States (e.g., Carolina and Delmarva Bays, Texas coastal prairie wetlands, prairie potholes, pocosins, western vernal pools) are similarly situated (i.e., they have a similar influence on the physical, biological, and chemical integrity of downstream waters and are similarly situated on the landscape) and thus are waters of the United States.**

4. <u>The Clean Water Rule Strengthens the Clean Water Act's Federal-State Cooperative Federalism Framework and Empowers States to Better Protect State Waters within this Framework</u>.

In 2006, more than 30 state attorneys general filed an amicus brief in *Rapanos* recognizing the essential Federal-State cooperative federalism framework for protecting the Nation's waters and supporting the Bush Administration's inclusive view of Clean Water Act coverage to meet the goals of the Clean Water Act. In September 2014, the State Attorneys General of New York, Connecticut, Delaware, Illinois, Maryland, Rhode Island, and Washington, and the District of Columbia submitted comments to EPA Administrator McCarthy in support of the proposed Clean Water Rule, reiterating the importance of inclusive Clean Water Act jurisdiction to protecting the waters of their states and the health and welfare of their citizens. In 2015, the States of New York, Connecticut, Hawaii, Massachusetts, Oregon, Vermont, and Washington, and the District of Columbia, reiterated these views when they moved to intervene in court in support of the Clean Water Rule.

The state attorneys general explained their interest in the Clean Water Rule as follows:

> *"First*…. The health and integrity of watersheds, with their networks of tributaries and wetlands that feed downstream waters, depend upon protecting the quality of upstream headwaters and adjacent wetlands. Moreover, watersheds frequently do not obey state boundaries, with all of the lower forty-eight states having waters that are downstream of the waters of other states. Thus, coverage under the Act of ecologically connected waters secured by the Rule is essential to achieve the water quality protection purpose of the Act, and to protect Proposed Intervenor States from upstream pollution occurring outside their borders.
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> *"Second*, by clarifying the scope of "waters of the United States," the rule promotes predictability and consistency in the application of the law, and in turn helps clear up the confusing body of case law that has emerged in the wake of the Supreme Court's *Rapanos* decision. The Rule accomplishes this by reducing the need for case-by-case jurisdictional determinations and, where such determinations are needed, by clarifying the standards for conducting them. Each of the Proposed Intervenor States implements programs under the Act. Thus, the rule is of direct benefit to movants because it helps alleviate administrative burdens and inefficiencies in carrying out those programs. In addition, the rule would help the States in administering the federal dredge-and-fill program if they choose to do so. *See* 33 U.S.C. §1344 (allowing States to implement a permitting program for dredge and fill material).
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> *"Third*, the rule advances the Act's goal of securing a strong federal "floor" for water pollution control, thereby protecting the economic interests of Proposed Intervenor States and other downstream states. The Rule allows movants to avoid having to impose costly, disproportionate, and economically harmful limits on instate pollution sources to waters within their borders, in order to offset upstream discharges that would otherwise go unregulated if the upstream waters are deemed to fall outside the Act's jurisdiction and are not otherwise regulated by upstream states. **The Rule protects the economies of Proposed Intervenor States because it serves to "prevent the 'Tragedy of the Commons' that might result if jurisdictions can compete industry and development by providing more liberal limitations than their neighboring states."** *NRDC*, 568 F.2d at 1378 (quoting *Train*, 510 F.2d at 709)."[8]

On a practical level, the state of play that preceded the Clean Water Rule (reflected in EPA/Army Corps guidance from 2008) has resulted in delays, confusion and uncertainty for applicants seeking permits along with increased workloads for Corps and EPA officials. EPA's costs to enforce CWA 402, 404, and 311 have increased significantly due to the incremental resources required to assert jurisdiction post *SWANCC* and *Rapanos*.[9] Because it can be difficult to establish where the CWA applies after the Supreme Court's decisions in *SWANCC* and *Rapanos*, enforcement efforts have shifted away from small streams high in the watershed where jurisdiction is a potential issue. Post-*Rapanos* uncertainty and added time and expense is undermining Clean Water Act enforcement

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[8] NY et al Motion to Intervene (6th Cir. August 28, 2015) (emphasis added).

[9] *See* 2014 EPA Economic Analysis at 30-31, at: http://www2.epa.gov/sites/production/files/2014-03/documents/wus_proposed_rule_economic_analysis.pdf.

and the overall effectiveness of the Clean Water Act in maintaining and restoring the nation's waters.

A key attribute of the Clean Water Rule is its additional clarity, relieving federal and state agencies and landowners alike of the confusing and burdensome case-by-case jurisdictional determinations required under the guidance for plans to discharge pollutants into most wetlands and streams. Ironically, the Clean Water Rule litigation and the current stay of the final rule not only extend but actually contribute to confusion and delay by discouraging EPA and the Corps from providing things like field level training and workshops concerning the implementation of the rule. Rescinding the Clean Water Rule will only extend the confusion, delay, and inconsistencies in Clean Water Act jurisdictional determinations.

5. <u>The Final Clean Water Rule Addresses Many of the Concerns Raised by State, Agricultural, and Small Business Stakeholders during the Extended and Rigorous Rulemaking Process</u>.

The final Clean Water Rule is the product of four years of rigorous and transparent scientific and public policy deliberation. See the attached Timeline 2001-2016. In 2011, in the face of congressional inaction, EPA and the Corps formally launched an administrative effort to clarify the "waters of the U.S." The 2011 Proposed Guidance was the subject of extensive interagency review, economic analysis, and public notice and comment. Approximately 250,000 comments were submitted on the guidance, and these overwhelmingly supported the revised guidance.

In 2011-2012, on a parallel track, the EPA Office of Research and Development compiled a draft science report, *The Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* (Connectivity Report).[10] This scientific report, based on peer-reviewed literature and an additional review by independent scientists, was prepared to inform the Administration's proposed rule clarifying which waters are protected under the Clean Water Act. In July 2013, the EPA Science Advisory Board (SAB) launched an SAB Expert Scientific Peer Review of the Connectivity Report.[11] In September 2013, the agencies released the Draft Connectivity of Streams and Wetlands Science Report for public comment. Also in September 2013, after holding up action on the Clean Water guidance in the Office of Management (OMB) for almost two years, the Administration sent its draft proposed Clean Water Rule to OMB for interagency review.

In March 25, 2014, after months of interagency review, the EPA and the Army Corps of Engineers jointly proposed the formal rule clarifying and partially restoring the historic scope of waters protected under the Clean Water Act. The 2-page proposed rule text in the federal register was thoroughly explained and supported by a lengthy preamble, including both scientific and legal

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[10] *See* *https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=296414&CFID=56176401&CFTOKEN=47329782*

[11] *See* SAB Peer Review process at: http://yosemite.epa.gov/sab/sabproduct.nsf/fedrgstr_activites/Watershed%20Connectivity%20Report!OpenDocument&TableRow=2.1#2.

appendices, the publicly available Connectivity Science Report, and a thorough Economic Analysis. **The 200-day public comment period ended November 14, 2014.[12] Americans submitted over 1 million comments on the proposed rulemaking, and these comments were overwhelmingly in support of the rulemaking.**

In late September-early October 2014, the SAB issued reports affirming the scientific basis for the proposed rule (SAB Rule Letter) [13] and affirming – with recommendations for enhancing – the scientific accuracy of the Connectivity Report (SAB Connectivity Peer Review Letter).[14] The Connectivity Report was revised and strengthened in accordance with the SAB recommendations and was released in final form in January 2015.[15] **Both the SAB report and the Final Connectivity Report inform the agencies' final "waters of the U.S." rule.**

Throughout 2014, EPA held hundreds of stakeholder meetings, including repeated meetings with agricultural, municipal, small business entities, and other stakeholders seeking improved clarity in the rulemaking. This rigorous and transparent rulemaking process offers the best opportunity in a generation to clarify which waters are – and are not – waters of the U.S. subject to the Clean Water Act in a manner that provides significantly more clarity.

6. <u>The Clean Water Rule Proactively Protects Water Supplies and Reduces the Need for More Expensive Downstream Pollution Removal Investments</u>.

The United States has an estimated water infrastructure investment deficit of more than $40 billion dollars per year for the next 25 years.[16] Much of this investment is needed to treat contaminated drinking water supplies to ensure they meet basic public health standards for consumption. There is no better investment to reduce this ever growing investment deficit that preventing additional pollution in the first place. In this case an ounce of prevention is truly worth a pound of cure—and while we must continue to invest in modernizing drinking water, wastewater, and storm water systems (including significantly expanding investments in natural infrastructure like wetland and stream restoration that remove pollution), we can avoid exacerbating the problem further by

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[12] *See* EPA Waters of the U.S. rulemaking process materials at: http://www2.epa.gov/uswaters.

[13] EPA SAB letter to Administrator McCarthy, *Science Advisory Board (SAB) Consideration of the Adequacy of the Scientific and Technical Basis of the EPA's Proposed Rule titled "Definition of Waters of the United States under the Clean Water Act"* (September 30, 2014) (SAB Rule Letter) at: http://yosemite.epa.gov/sab/sabproduct.nsf/518D4909D94CB6E585257D6300767DD6/$File/EPA-SAB-14-007+unsigned.pdf

[14] EPA SAB letter to Administrator McCarthy, *SAB Review of the Draft EPA Report Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* (October 17, 2014) (SAB Connectivity Peer Review Letter) at: http://yosemite.epa.gov/sab/sabproduct.nsf/fedrgstr_activites/AF1A28537854F8AB85257D74005003D2/$File/EPA-SAB-15-001+unsigned.pdf

[15] *Final EPA Report: Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* (January 2015) at: http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=296414#Download

[16] http://www.infrastructurereportcard.org/cat-item/drinking-water/

reducing the amount of additional pollution that enters our water supplies.

7. <u>The Clean Water Rule's Protection of Headwater Streams and Wetlands is Essential to the Conservation of Thousands of Aquatic Species That Face Potential Extinction.</u>

Research shows that, of the best-known groups of U.S. species, including birds, mammals, amphibians, fish and plants—most of which depend upon healthy freshwater systems—fully one third are at risk of extinction.[17] This includes one third of the 5,743 known species of frogs, toads, salamanders and caecilians.[18] Research also shows that one-third of native freshwater fish and nearly two-thirds of native freshwater mussels are at-risk of extinction across North America.[19] Further, the conservation of wetlands and headwater streams are important to game species from waterfowl to trout. Protecting and investing in headwater streams and wetlands is one of the best investments that we can make to save America's diverse fish and wildlife resources—and prevent the need for more restrictive regulations under the Endangered Species Act.

8. <u>The Clean Water Rule Fosters Strong Local Economies and Millions of Jobs that Depend upon Clean and Abundant Water and Healthy Wetlands and Waterways</u>.

EPA's economic analysis demonstrates that this rule to clarify and restore clean water protections is good for the economy. EPA estimates that the change in benefits of CWA programs exceeds the costs by a ratio of greater than 1:1. The economic analysis finds that the rule will provide at least $339 million and up to $572 million annually in benefits to the public, including reducing flooding, filtering pollution, providing fish and wildlife habitat, supporting hunting and fishing, and recharging groundwater. [20]

Healthy wetlands and streams are economic engines for local recreation-based economies. Every year 47 million Americans head to the field to hunt or fish. For example, the American Sportfishing Association reports that **anglers generated more than $201 billion in total economic activity in 2011, supporting more than 1.5 million jobs**.[21] The U.S Fish and Wildlife Service estimated that duck hunting in 2006 had a positive economic impact of more than $2.3 billion, supporting more than 27,000 private sector jobs.[22]

In some rural, mountain communities, river recreation and related activities generate the largest share of the local economy. Indeed, throughout the headwaters states, river recreation, including

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[17] Stein, B.A., L.S. Kutner, and J.S. Adams. 2000. *Precious Heritage: The Status of Biodiversity in the United States.* New York: Oxford University Press.

[18] http://www.natureserve.org/library/amphibian_fact_sheet.pdf

[19] "National Strategy for the Conservation of Native Freshwater Mussels" The National Native Mussel Conservation Committee. *Shellfish Research, Vol. 17, No. 5, 1419-1428, 1998.*

[20] *See* Clean Water Rule: Definition of "Waters of the United States," 80 Fed. Reg. at 37101 (June 29, 2015).

[21] American Sportfishing Association, *Sportfishing in America* (January 2013).

[22] Economic Impact of Waterfowl Hunting in the United States, Addendum to the 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, November 2008. US Fish and Wildlife Service.

boating, fishing and wildlife watching, represent billions of dollars in commerce.[23] In the Colorado River Basin portion of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, 2.26 million people participated in water sports in 2011, spending $1.7 billion that generated $2.5 billion in total economic output.[24]

Another indication of the economic implications of protecting the Nation's water resources is revealed in the example of the actions taken by New York City to initiate a $250 million program to acquire and protect up to 350,000 acres of wetlands and riparian lands in the Catskill Mountains to protect the quality of its water supply rather than constructing water treatment plants which could cost as much as $6-8 billion. (Dailey et al. 1999). In South Carolina, a study showed that without the wetland services provided by the Congaree Swamp, a $5 million wastewater treatment plant would be required (http://water.epa.gov/type/wetlands/people.cfm).

The kinds of waters for which the rule guarantees protection also help filter out pollution that fuels hazardous algae outbreaks. These algal "blooms" can cause health problems and inflict high economic costs. For example, Dodds et al (2009) estimated that the total annual cost of the eutrophication of U.S. freshwaters was $2.2 billion. This estimate included recreational and angling costs, property values, drinking water treatment costs, and a conservative estimate of the costs of the loss of biodiversity. Polasky and Ren (2010) cited research that estimated that if two lakes (Big Sandy and Leech) in Minnesota had an increase in water clarity of three feet, lakefront property owners would realize a benefit of between $50 and $100 million.

By any measure, clarifying and restoring clean water protections for America's waters is a good investment for healthy communities and a healthy economy.

9. <u>The Clean Water Rule, like the Clean Water Act, Enjoys Widespread, Bi-Partisan Support</u>.

Poll after poll shows broad public support for clean water, the Clean Water Act, and the Clean Water Rule. In 2015, the bi-partisan team of Public Opinion Strategies and Greenberg Quinlan Rosner Research found that **83% of hunters and anglers supported using the Clean Water Act to protect small streams and wetlands.**[25] Due to the hunting and angling focus, the poll represented a conservative sample with 49% of the overall respondents identifying with the Tea Party. Duck hunters and anglers especially care about the health of waterways and wetlands, because they provide essential habitat for all species of ducks and freshwater fish. So it's not surprising that support for this policy was strong among sportsmen and women across the political spectrum with 77% of Republicans, 79% of Independents and 97% of Democrats in favor. **Fully 89% said that the Clean Water Act has been "more of a good thing" for the country, with**

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[23] Western Resource Advocates 2014 Rule Comments.

[24] SOUTHWICK ASSOC., ECONOMIC CONTRIBUTIONS OF OUTDOOR RECREATION ON THE COLORADO RIVER & ITS TRIBUTARIES (May 3, 2012) (Table E-3), *available at* http://protectflows.com/wp-content/uploads/2013/09/Colorado-River-Recreational-Economic-Impacts-Southwick-Associates-5-3-12_2.pdf.

[25] http://www.nwf.org/~/media/PDFs/Water/2015/2015-Sportsmen-Poll/National_NWF-Sportsmen-Water-Survey_2015.pdf

majorities of every single demographic sub-group echoing this sentiment. It comes as no surprise, then, that the Clean Water Rule enjoyed overwhelming public support through the extended rulemaking process.

It is worth remembering that in 2003, in the face of strong opposition, the Bush Administration's EPA was forced to withdraw an advanced notice of proposed rulemaking to potentially remove from Clean Water Act jurisdiction many non-navigable, intrastate wetlands, streams and other waters. That spring, 39 state agencies and hundreds of thousands of individuals and organizations submitted comments urging the EPA and the Corps not to reduce the historic scope of waters protected under the Clean Water Act. Later that year, over 200 members of Congress from both parties (including Rep. Paul Ryan among others) wrote a letter to President Bush urging him "not to pursue any policy or regulatory changes that would reduce the scope of waters protected under the Clean Water Act."

CONCLUSION

The National Wildlife Federation strongly supports this historic "waters of the United States" rulemaking as legally required, good for the domestic economy, and the best chance in a generation to clarify which waters are – and are not – "waters of the United States" protected by the 1972 Clean Water Act. The final Clean Water Rule, if allowed to stand and be affirmed by the Courts, would strengthen local economies, provide greater long-term certainty for landowners, and better protect important streams and wetlands and the fish, wildlife, and communities that depend upon them, while advancing our collective efforts to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

ATTACHMENTS:

Clean Water Rule Timeline 2001-2016

Scientists Letter to the Chair and Ranking Member of the Senate Committee on Environment and Public Works, Subcommittee on Fisheries, Water, and Wildlife *re: Scientists Strongly Oppose S.1140, Legislation Undermining Needed Protections for the Nation's Streams, Wetlands, and Other Waters*, dated May 18, 2015

Amicus Curiae Brief of Dr. M. Siobhan Fennessy, Dr. Carol A. Johnston, Dr. Marinus L. Otte, Dr. Margaret Palmer, Dr. James E. Perry, Professor Charles Simenstad, Dr. Benjamin R. Tanner, Dr. Dan Tufford, Dr. R. Eugene Turner, Dr. Kirsten Work, Dr. Scott C. Yaich, and Dr. Joy B. Zedler in Support of Upholding the Clean Water Rule **in** *Murray Energy Corporation et al v. U.S EPA, et al* (6th Cir. January 20, 2017).

Clean Water Rule Timeline: 2001 – 2016

- **January 2001 Supreme Court decides *Solid Waste Agency of Northern Cook Cty. v. Army Corps of Engineers (SWANCC)*:** The Supreme Court held (in a 5-4 opinion) that the use of "isolated" non-navigable intrastate ponds by migratory birds was not by itself a sufficient basis to find Clean Water Act jurisdiction over such waters.

- **2002 Introduction of the Clean Water Authority Restoration Act**: A bill to amend the 1972 Clean Water Act to clarify the jurisdiction of the United States over the Waters of the United States. Essentially this same legislation was introduced in each congressional session from 2002 through 2010.

- **January 2003 Advanced Notice of Proposed Rulemaking (ANPRM) and SWANCC Guidance:** The Bush Administration's EPA issues SWANCC guidance (immediately effective without advance public notice and comment) with an advanced notice of proposed rulemaking.

- **Spring 2003 Comments Opposing ANPRM:** 39 state agencies and hundreds of thousands of individuals and organizations submitted comments urging the EPA and the Corps not to reduce the historic scope of waters protected under the Clean Water Act.

- **November 2003 Congress Opposes Narrowing CWA Jurisdiction:** Over 200 members of Congress from both parties (including Rep. Paul Ryan among others) wrote a letter to President Bush urging him "not to pursue any policy or regulatory changes that would reduce the scope of waters protected under the Clean Water Act."

- **December 2003 Withdrawal of ANPRM:** The Bush Administration abandons its rulemaking to reduce the scope of waters covered by the Clean Water Act, but retains the SWANCC Guidance, effectively removing CWA protections for an estimated 20 million so-called "isolated" wetland acres.

- **June 2006 Supreme Court decides *Rapanos vs. the United States* and Carabell v. United States:** The Supreme Court issues a fractured (4-1-4) decision involving wetlands adjacent to non-navigable tributaries of traditional navigable waters. A four justice plurality found that "waters of the U.S" covers "relatively permanent, standing or continuously flowing bodies of water" (including some seasonally flowing rivers) that are connected to traditional navigable waters, as well as wetlands with a "continuous surface connection" to such relatively permanent waters. Justice Kennedy's concurring opinion disagrees with the plurality opinion, and concludes that "waters of the U.S." includes wetlands that possess a "significant nexus" with navigable waters. He finds that wetlands possess the requisite significant nexus if they "either alone or in combination with similarly situated [wet] lands in the region, significantly affect the chemical, physical, and biological integrity" of other covered waters more readily understood as navigable. Three of the various opinions urged the agencies to initiate a rulemaking clarifying the "waters of the U.S". The decision was a 4-1-4 ruling.

- **2006-2014: Federal Court Litigation on "Waters of the U.S" Mounts Post-Rapanos, adding to costly litigation, uncertainty, delay, and hampered Clean Water Act enforcement.**

- **2007-2008 Bush Administration Rapanos Guidance:** The Bush EPA issues immediately effective Rapanos Guidance without advance public notice and comment. This guidance largely ignores the Kennedy direction to base significant nexus determinations based on the combination of similarly situated waters and imposes a confusing and burdensome case-by-case jurisdictional requirement on most wetlands and streams. Modest revisions were made to the Bush Administration Guidance in 2008.

- **2009 Clean Water Restoration Act (CWRA) is favorably reported to the Senate Floor by the Senate Environment and Public Works Committee, but is stalled in Congress through 2010.** CWRA would have restored the historical scope of the Clean Water Act to those waters protected by the Act prior to the 2001 SWANCC decision, but not expanded the scope of jurisdiction beyond those covered at that time.

- **April 2011 Proposed Guidance:** EPA and the Corps proposed guidance for determining CWA jurisdiction to replace guidance issued in 2003 and 2008. The proposal also announced the agencies' plans to proceed with rulemaking. The 2011 Proposed Guidance was the subject of extensive interagency review, economic analysis, and public notice and comment. Approximately 250,000 comments were submitted on the guidance, and these overwhelmingly supported the revised guidance. The proposed guidance would provide more certain and predictable protections for many streams and wetlands by comparison to the existing 2003 and 2008 guidance documents. The 2011 guidance still required a case-specific finding of significant nexus, but it found that based on the combined downstream effects of tributaries and adjacent waters within a watershed, significant nexus and CWA jurisdiction were highly likely to be established for these categories of waters.

- **2011-2012: EPA Office of Research and Development compiles a draft science report, *The Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence*.** This scientific report, based on peer-reviewed literature and an additional review by independent scientists, informs the Administration's proposed rule clarifying which waters are protected under the Clean Water Act.

- **July 2013: EPA Science Advisory Board (SAB) Launches an SAB Expert Scientific Peer Review of the Connectivity Report.** SAB peer review process and substance available throughout process at: https://yosemite.epa.gov/sab/sabproduct.nsf/fedrgstr_activites/Watershed%20Connectivity%20Report!OpenDocument&TableRow=2.2#2.

- **September 2013: Administration Releases Draft Connectivity of Streams and Wetlands Science Report for public comment.**

- **September 2013: Administration Sends Proposed Clean Water Rule to OMB:** After holding up action on the Clean Water guidance in the Office of Management (OMB) for almost two years, the Administration sent its draft proposed Clean Water Rule to OMB for interagency review.

- **March 25, 2014: Administration Formally Proposes Clean Water Rule**: The EPA and the Army Corps of Engineers jointly propose the formal rule clarifying and partially restoring the historic scope of waters protected under the Clean Water Act. The 200+-day comment period ended November 14, 2014.

    - **EPA held over 100 meetings with state entities as well as many with agricultural and other stakeholders during the comment period:**
        - EPA Headquarters Proposed Rule Meetings/Events For Docket EPA-HQ-OW-2011-0880 (following the release of the proposed rule): http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2011-0880-13183
        - 2014 EPA Regional Proposed Rule Meetings/Events for Docket EPA-HQ-OW-2011-0880: http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2011-0880-13182

- **Summer 2014: Connectivity Report Peer-Review Wraps Up:** affirming the scientific synthesis and concluding that the scientific synthesis provides a sufficient scientific foundation for the Proposed Clean Water Rule.

- **October 17, 2014:** The Science Advisory Board's final peer review report supporting the draft Connectivity Report is formally issued.

- **November 14, 2014: Clean Water Rule public comment period ended, with over 1 million comments submitted.**

    - **EPA held dozens of meetings with stakeholders before finalizing the Clean Water Rule:** EPA Headquarters Stakeholder Meetings for Docket EPA-HQ-OW-2011-0880 Occurring After the Close of the Comment Period (November 14, 2014): http://www.regulations.gov/#!documentDetail;D=EPA-HQ-OW-2011-0880-20870

- **May 27, 2015: EPA and the Army Corps of Engineers signed the final Clean Water Rule.** The final rule was published in the federal register on June 29, 2015, available at https://www.epa.gov/sites/production/files/2015-06/documents/epa-hq-ow-2011-0880-20862.pdf and became effective on August 28, 2015.

- **October 9, 2015:** The Sixth Circuit U.S. Court of Appeals, ruling on the consolidated petitions from multiple circuits, issued a nationwide stay of the Clean Water Rule pending further resolution of the multi-district litigation challenging the rule.

- **February 22, 2016:** The Sixth Circuit panel found jurisdiction to review the merits of the Clean Water Rule. A petition to review en banc is under consideration.

- **Pending lifting of stays of the Clean Water Rule, the 2003 and 2008 guidance documents requiring cumbersome and confusing case-by-case jurisdictional determinations remain in effect.**

Case No. 15-3751/15-3799/15-3817/15-3820/15-3822/15-3823/15-3831/
15-3837/15-3839/15- 3850/15-3853/15-3858/15-3885/15-3887/15-3948/
15-4159/15-4162/15-4188/15-4211/15-4234/15-4305/15-4404

IN THE UNITED STATES COURT OF APPEALS
FOR THE SIXTH CIRCUIT

MURRAY ENERGY CORPORATION et al.,	)	In re: ENVIRONMENTAL PROTECTION AGENCY AND DEPARTMENT OF DEFENSE, FINAL RULE: CLEAN WATER RULE: DEFINITION OF "WATERS OF THE UNITED STATES," 80 FED. REG. 37,054 (JUNE 29, 2015)
Petitioners,	)	
v.	)	
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY; GINA MCCARTHY; UNITED STATES ARMY CORPS OF ENGINEERS; JOHN MCHUGH; JO-ELLEN DARCY,	)	
Respondents.	)	

On Petitions for Review of a Final Rule of the United States Environmental Protection Agency and the United States Army Corps of Engineers

Brief of Dr. M. Siobhan Fennessy, Dr. Carol A. Johnston, Dr. Marinus L. Otte, Dr. Margaret Palmer, Dr. James E. Perry, Professor Charles Simenstad, Dr. Benjamin R. Tanner, Dr. Dan Tufford, Dr. R. Eugene Turner, Dr. Kirsten Work, Dr. Scott C. Yaich, and Dr. Joy B. Zedler as Amici Curiae in Support of Respondents and in Support of Upholding the Clean Water Rule

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INTERESTS OF AMICI CURIAE[1]

Amici curiae are wetland and water scientists, actively involved in research and teaching about the fresh and estuarine waters of the United States. As practicing scientists who have spent our careers studying streams, wetlands, and other aquatic ecosystems, we—and many in our profession—have long explored the ways in which human activities that affect one part of a watershed can also affect—and damage—other parts of that watershed. In doing so, we have applied the basic tools of our profession: literature review, on-site observations, measurements, experimental manipulations, studies of "natural experiments," and modeling based on observations and our understanding of the physical sciences. Based upon these tools, we believe that current science provides sound support for the Clean Water Rule.

As scientists, we weigh in on the definition of "waters of the United States" under the Clean Water Act (CWA), 33 U.S.C. §1251 et seq. (1972), relying on our research and experience with tributaries and geographically proximate adjacent waters. In this brief, we elaborate on the scientific basis behind efforts to address human activities that alter the integrity of aquatic ecosystems. Damage to these systems can affect society in a number of ways, including: harming human welfare

[1] In accordance with Federal Rule of Appellate Procedure 29(a)(4)(E), this brief was not authored in whole or in part by a party's counsel, no party or party's counsel contributed money that was intended to fund preparing or submitting the brief, and no person—other than the amici curiae or their counsel—contributed money that was intended to fund preparing or submitting the brief.

and property via flooding, impairing human health via water pollution, loss of recreational opportunities, and threatening species, including commercial species harvested in fisheries, via water pollution and a loss of connectivity. Millennium Ecosystem Assessment, *Ecosystems and Human Well-Being: Wetlands and Water* 1–3 (José Sarukhán et al. eds., 2005); *The Economic and Market Value of Coasts and Estuaries: What's at Stake?* (Linwood H. Pendleton ed., 2008), *available at* http://www.era.noaa.gov/pdfs/052008final_econ.pdf; *see also* David Moreno-Mateos & Margaret A. Palmer, *Watershed Processes as Drivers for Aquatic Ecosystem Restoration*, *in Foundations of Restoration Ecology* (Margaret A. Palmer et al. eds., 2d ed. 2016). We believe that the Clean Water Rule's definition of "waters of the United States," 80 Fed. Reg. 37,054 (June 29, 2015), is a scientifically justified approach to address these impacts.

I. The Clean Water Rule is scientifically sound.

In drafting the Clean Water Rule, the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) utilized many methodologies employed by amici in our research and by others. The agencies studied key chemical, physical, and biological features of water systems and relied upon studies that used rigorous and respected methodologies in researching aquatic ecosystems.

A. Key chemical, physical, and biological features are used to study water systems.

An early major National Research Council report, *Wetlands: Characteristics and Boundaries* (1995), which amici Joy Zedler and Carol Johnston co-authored, outlined three structural components of wetlands that apply generally to all water systems: water, substrate (physical and chemical features), and biota (animal, plant, and microorganism life). *Id.* at 3–4; *see also* Figure 1. Each component interacts with the others to shape the functions (services) of water systems. In

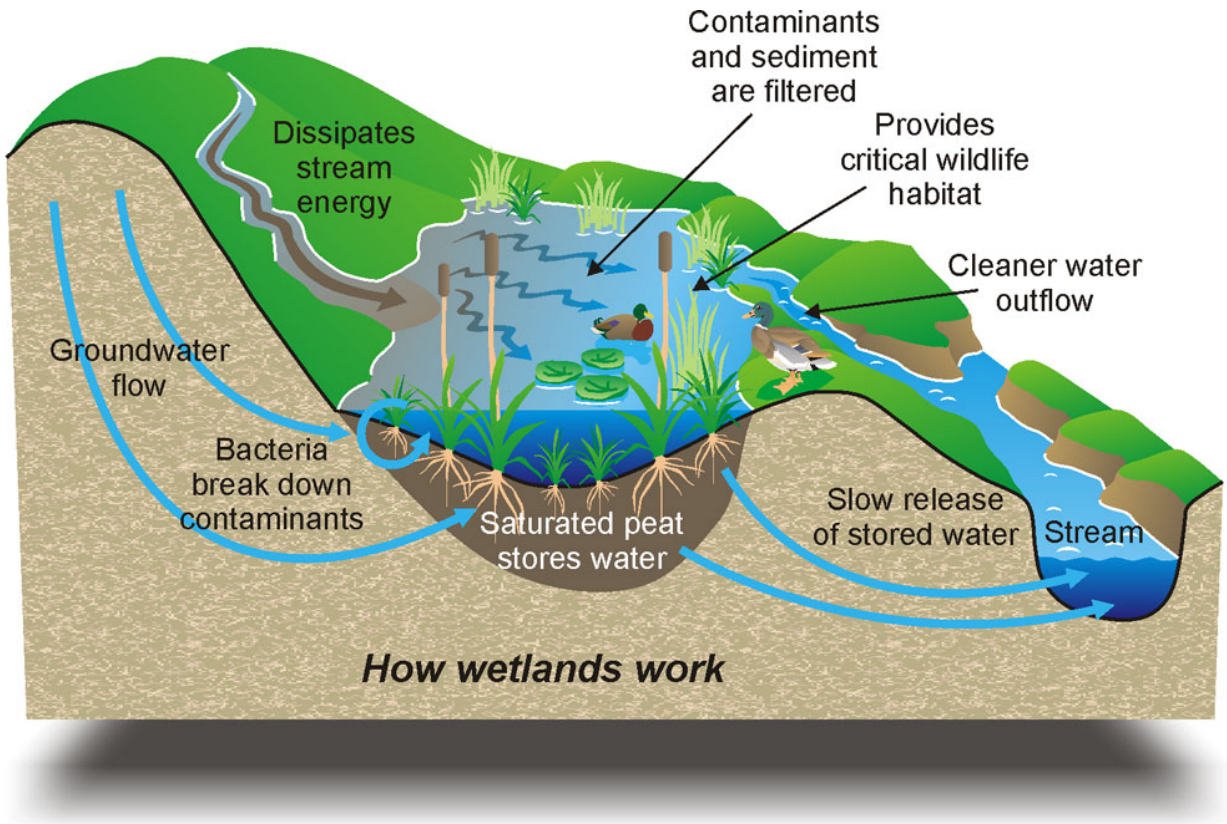

Figure 1. How Wetlands Work. Source: Delaware Wetland Monitoring and Assessment Program.

the study underlying the Clean Water Rule, the EPA and the Corps examined connections among these three factors to provide an integrated perspective on water systems. EPA Office of Research & Dev., *Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* 1-2 to 1-19 (Jan. 2015) [hereinafter *Connectivity Report*].

B. Rigorous research methods are used to study these attributes, and to study aquatic ecosystems as a whole.

The study of water systems integrates several scientific disciplines. In the context of understanding wetlands, hydrology, geology, and chemistry are used to examine how wetlands regulate stream flow, filter pollutants and sediment, incorporate excess nutrients, act to control flooding, and connect to groundwater. *See, e.g.*, Carol A. Johnston, *Sediment and Nutrient Retention by Freshwater Wetlands: Effects on Surface Water Quality*, 21 Critical Rev. Envtl. Control 491–565 (1991); Donald L. Hey & Nancy S. Philippi, *Flood Reduction Through Wetland Restoration: The Upper Mississippi River Basin as a Case History*, 3 Restoration Ecology 4–17 (2006); Peter J. Hancock et al., *Preface: Hydrogeoecology, the Interdisciplinary Study of Groundwater Dependent Ecosystems*, 17 Hydrogeology J. 1–3 (2009). Ecological research can be used to examine the role of wetlands as habitats for fish and wildlife, and their support of food webs within and among interconnected water systems. *See, e.g.*, Matthew J. Gray et al., *Management of Wetlands for Wildlife*, in 3 *Wetland Techniques:*

Applications and Management 121–80 (J.T. Anderson & C.A. Davis eds., 2013); Michael E. Sierszen et al., *Watershed and Lake Influences on the Energetic Base of Coastal Wetland Food Webs Across the Great Lakes Basin*, 38 J. Great Lakes Res. 418–28 (2012). Underlying this cross-disciplinary approach is a focus on the various methodologies noted above. We do not apply these methods independently of each other, but rather actively compare them to ensure that our results are robust and reproducible. *Cf.* David Goodstein, *How Science Works*, in Fed. Judicial Ctr., *Reference Manual on Scientific Evidence* 37, 44 (3d ed. 2011).

To study water systems, we use a wide range of sampling and analytical methods to make our on-site observations and measurements. *See* R.D. DeLaune et al., *Methods in Biogeochemistry of Wetlands* (2013). These methods include examining the chemical and physical characteristics of the waters, characterizing soil and sediment samples, and sampling plant communities. *See generally id.*; *see also Tools in Fluvial Geomorphology* (G. Mathias Kondolf & Hervé Piégay eds., 2d ed. 2016). These sampling and analytical methods are well-established, rigorous, and refined over time; we use them to enhance our understanding of the relationships between the various components of water systems.

Watershed or hydrologic studies may make use of "natural experiments" (a form of observational study), which focus on comparing a natural event or feature with areas (or times) with and without the event or feature. Fed. Judicial Ctr.,

Reference Manual on Scientific Evidence 290 (2011); *see also* Judith A. Layzer, *Natural Experiments: Ecosystem-Based Management and the Environment* (2008). In studying developed and undeveloped watersheds, for example, the assignment of subjects (e.g., watersheds) to groups (e.g., developed or not) is akin to randomization. Such natural experiments are often necessary because ethical considerations (i.e., concerns of deliberately damaging those systems), size, and cost create barriers for actual experiments on existing systems. *See* Susan Haack, *Defending Science—Within Reason: Between Scientism and Cynicism* (2003). Rather than disrupting existing systems, we look toward variations to extrapolate the effects of differences on the overall water system.

We also rely on modeling methods to enhance our understanding of the water-system relationships. *See* Nat'l Judicial Coll., *Hydrologic Modeling Benchbook* 31 (2010) (describing computer-based models as "essential" for understanding water systems). Models serve multiple purposes. First, they enable us to test our understanding of interrelationships between different components of a water system. *Id.* Second, they enable us to predict the outcomes of potential human activities that may cause damage—without modifying those systems. *Id.* Models also make it possible to study processes at scales of watersheds to continents that are too extensive to be investigated by observations alone, and to simulate scenarios of hydrologic and other wetland/watershed processes drawn

from historical record. *E.g.*, Kangsheng Wu & Carol A. Johnston, *Hydrologic Comparison Between a Forested and a Wetland/Lake Dominated Watershed Using SWAT*, 22 Hydrological Processes 1431–42 (2008).

The Connectivity Report reached its conclusions using studies that applied all of these methodologies. Indeed, the EPA, in its Connectivity Report, compiled these studies in a manner to ensure the use of high-quality, relevant research. *Connectivity Report*, *supra* at 1-17; *see also* U.S. Envtl. Prot. Agency & U.S. Dep't of Army, *Technical Support Document for the Clean Water Rule: Definition of Waters of the United States* 158–63 (May 27, 2015) [hereinafter *Technical Support Document*] (describing the extensive process of peer review of the Connectivity Report itself, including the use of a panel of 27 technical experts from an array of relevant fields, as well as other public processes). Moreover, the Connectivity Report included only studies that were peer reviewed or otherwise verified for quality assurance. *Id.* The focus on high standards and verification through peer review means that the Connectivity Report used the best available science to develop the Clean Water Rule. *See* Clean Water Rule, 80 Fed. Reg. at 37,055; *see also, e.g.*, P.J. Sullivan et al., *Report: Best Science Committee, Defining and Implementing Best Available Science for Fisheries and Environmental Science, Policy, and Management*, 31 Fisheries 460, 462 (2006) (describing assurance of data quality and use of rigorous peer review as aspects of best available science).

II. "Waters of the United States" is a legal determination informed by science.

Jurisdiction under the CWA has both legal and scientific components. The CWA defines the term "navigable waters" as "waters of the United States," which has been further refined by case law, regulation, and agency guidance. There is no question that traditional navigable waters, interstate waters, and the territorial seas (hereinafter collectively referred to as "primary waters") are "waters of the United States." For other waters, such as tributaries and waters adjacent to those tributaries, scientific research plays a critical role in determining how they affect the chemical, physical, and biological integrity of primary waters, and thus their qualifications for CWA protection.

A. As a legal matter, CWA jurisdiction requires a "significant nexus" to a primary water.

While "waters of the United States" include more than primary waters, the CWA's jurisdictional scope has limits. In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers*, the U.S. Supreme Court noted that the term "navigable" has some import in CWA jurisdictional determinations. 531 U.S. 159, 172 (2001). Accordingly, agencies and courts have employed the "significant nexus" analysis, endorsed by Justice Kennedy in *Rapanos v. United States*. 547 U.S. 715, 759 (2006) (Kennedy, J., concurring in the judgment). This approach

recognizes that upstream waters must be protected to ensure the integrity of primary waters. *Id.* at 774–75.

B. As a scientific matter, the Clean Water Rule's approach to "significant nexus" is sound.

The Clean Water Rule relies on the best available science to establish criteria for the requisite "significant nexus" between primary waters and other waters. Primary waters do not exist in isolation. Nat'l Research Council, *Compensating for Wetland Losses Under the Clean Water Act* 46–59 (2001). Rather, they are heavily influenced by their interactions with streams, wetlands, and open waters within their watersheds. As the Connectivity Report correctly emphasizes:

> The structure and function of downstream waters highly depend on materials—broadly defined as any physical, chemical, or biological entity—that originate outside of the downstream waters. Most of the constituent materials in rivers, for example, originate from aquatic ecosystems located upstream in the drainage network or elsewhere in the drainage basin, and are transported to the river through flowpaths[.]

Connectivity Report, *supra*, at ES-15. The Clean Water Rule appropriately defines "significant nexus" using scientifically supported functions to demonstrate strong chemical, physical, and biological connections between upstream waters and primary waters.

Scientific literature strongly supports the nine functions listed in the Clean Water Rule's "significant nexus" definition. First, each function relates to the

chemical, physical, and/or biological integrity of primary waters. For example, wetlands enhance the chemical integrity of downstream waters through trapping, transforming, and filtering pollutants. *See* Carol A. Johnston et al., *The Cumulative Effect of Wetlands on Stream Water Quality and Quantity: A Landscape Approach*, 10 Biogeochemistry 105–41 (1990). Wetlands also recycle nutrients and export organic material. *See* Michael E. McClain et al., *Biogeochemical Hot Spots and Hot Moments at the Interface of Terrestrial and Aquatic Ecosystems*, 6 Ecosystems 301–12 (2003); Nathan J. Smucker & Naomi E. Detenbeck, *Meta-Analysis of Lost Ecosystem Attributes in Urban Streams and the Effectiveness of Out-of-Channel Management Practices*, 22 Restoration Ecology 741–48 (2014).

Similarly, the functions of streams, wetlands, and open waters affect the physical integrity of downstream waters. *See, e.g.*, Tim D. Fletcher et al., *Protection of Stream Ecosystems from Urban Stormwater Runoff: The Multiple Benefits of an Ecohydrological Approach*, 38 Progress in Physical Geography 543–55 (2014). These waters contribute flow to primary waters. *See, e.g.*, Carol A. Johnston & Boris A. Shmagin, *Regionalization, Seasonality, and Trends of Streamflow in the U.S. Great Lakes Basin*, 362 J. Hydrology 69–88 (2008). Research has shown that many wetlands without a year-round surface connection to primary waters flow into perennial streams a significant amount of the time, thereby contributing water and other materials downstream. *See, e.g.*, Owen T.

McDonough et al., *Surface Hydrologic Connectivity Between Delmarva Bay Wetlands and Nearby Streams Along a Gradient of Agricultural Alteration*, 35 Wetlands 41–53 (2015); Heather E. Golden et al., *Hydrologic Connectivity Between Geographically Isolated Wetlands and Surface Water Systems: A Review of Select Modeling Methods*, 53 Envtl. Modelling & Software 190–206 (2014).

Wetlands also retain and attenuate floodwaters, as well as store runoff. *See* Hisashi Ogawa & James W. Male, *Simulating the Flood Mitigation Role of Wetlands*, 112 J. Water Resources Plan. & Mgmt. 114–28 (1986); Carol A. Johnston, *Material Fluxes Across Wetland Ecotones in Northern Landscapes*, 3 Ecological Applications 424–40 (1993). In addition, they trap sediment, thereby preventing the degradation of downstream water quality. *See* Carol A. Johnston et al., *Nutrient Trapping by Sediment Deposition in a Seasonally Flooded Lakeside Wetland*, 13 J. Envtl. Quality 283–90 (1984).

The Clean Water Rule's definition of "significant nexus" also recognizes how streams, wetlands, and open waters affect the biological integrity of downstream waters. Such waters provide important foraging, nesting, breeding, spawning, and nursery habitat for species that occur in primary waters. *See* Marcus Sheaves, *Consequences of Ecological Connectivity: The Coastal Ecosystem Mosaic*, 391 Marine Ecology Progress Series 107–15 (2009); Raymond D. Semlitsch & J. Russell Bodie, *Are Small, Isolated Wetlands Expendable?*, 12

Conservation Biology 1129–33 (1998); Shannon E. Pittman et al., *Movement Ecology of Amphibians: A Missing Component to Understanding Amphibian Declines*, 169 Biological Conservation 44–53 (2014).

Connectivity refers to "the degree to which components of a watershed are joined and interact by transport mechanisms that function across multiple spatial and temporal scales." *Connectivity Report*, *supra*, at ES-6. Whether the functions of a particular stream, wetland, or open water (or a group of "similarly situated" waters) satisfy the legal threshold of "significant nexus" depends on the extent of its connectivity with primary waters. We examine the Clean Water Rule's categorical application of the "significant nexus" test below.

III. Best available science supports the Clean Water Rule's categorical treatment of tributaries.

Our research and that of other scientists demonstrates extensive connections between tributaries and their downstream primary waters sufficient to warrant categorical inclusion under the Clean Water Rule. *See* R. Eugene Turner & Nancy N. Rabalais, *Linking Landscape and Water Quality in the Mississippi River Basin for 200 Years*, 53 BioScience 563–72 (2003). The U.S. Supreme Court has held that federal agencies may craft a categorical rule to assert CWA jurisdiction over certain waters. *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 135 (1985). The Court noted that so long as "it is reasonable . . . to conclude that, in the

majority of cases" the category of waters has "significant effects on water quality and the aquatic ecosystem, its definition can stand." *Id.* at 135 n.9.

A. The Clean Water Rule's definition of tributary is scientifically sound.

The Clean Water Rule defines "tributary" in a manner consistent with our scientific understanding. At its most basic level, a tributary is simply a waterbody that flows into a larger waterbody. From a scientific perspective, "a tributary is the smaller of two intersecting channels, and the larger is the main stem." Lee Benda et al., *The Network Dynamics Hypothesis: How Channel Networks Structure Riverine Habitats*, 54 BioScience 413, 415 (2004). A standard stream ordering system classifies the smallest streams as first-order streams; when two streams meet, they form a second-order stream and so on. *See* Arthur N. Strahler, *Quantitative Analysis of Watershed Geomorphology*, 38 Transactions of American Geophysical Union 913–20 (1957). The smaller waters are intrinsically linked to primary waters both structurally and functionally. *See* Dennis F. Whigham et al., *Impacts of Freshwater Wetlands on Water Quality: A Landscape Perspective*, 12 Envtl. Mgmt. 663–71 (1988). Indeed, "[t]he great majority of the total length of river systems is comprised of lower-order or headwater systems." J. David Allan & María M. Castillo, *Stream Ecology: Structure and Function of Running Waters* 2 (2d ed. 2007); *see also* Ken M. Fritz et al., *Comparing the Extent and Permanence*

of Headwater Streams from Two Field Surveys to Values from Hydrographic Databases and Maps, 49 J. Am. Water Resources Ass'n 867–82 (2013).

Under the Clean Water Rule, a "tributary . . . contributes flow, either directly or through another water" to primary waters and is "characterized by the presence of the physical indicators of a bed and banks and an ordinary high water mark." 80 Fed. Reg. at 37,105. The Clean Water Rule notes that tributaries may be natural or human-made and include "rivers, streams, [and] canals," as well as ditches that are not otherwise excluded by the Rule. *Id.* From a scientific perspective, whether a tributary is natural or human-made is immaterial; what matters is whether the water contributes flow to another waterbody.

Under the Clean Water Rule, a water meets the definition of a tributary even if it contributes flow to a primary water through a non-jurisdictional water. This approach is also sound because the scientific definition of tributary focuses on the hydrologic connection between waters.

From a scientific perspective, the Clean Water Rule's definition of "tributary" could be considered conservative. In addition to requiring a bed and banks (channels), it also provides that a tributary must have an ordinary high water mark (OHWM). In comments to the EPA, however, the Scientific Advisory Board noted that not all tributaries have OHWMs. Ltr. from EPA Sci. Advisory Bd., to Gina McCarthy, EPA Administrator, *Science Advisory Board (SAB) Consideration*

of the Adequacy of the Scientific and Technical Basis of the EPA's Proposed Rule Titled "Definition of Waters of the United States Under the Clean Water Act" (Sept. 30, 2014) (on file with epa.gov). The OHWM requirement (which is ultimately a limitation on what constitutes a water of the United States) is not dictated by science, but we recognize that the agencies must set boundaries along gradients to apply the CWA on a national basis.

B. Compelling scientific evidence demonstrates that tributaries significantly affect the chemical, physical, and biological integrity of primary waters.

The National Academy of Sciences has extensively documented the connections between tributaries and downstream waters. *See, e.g.*, Nat'l Research Council, *Achieving Nutrient and Sediment Reduction Goals in the Chesapeake Bay: An Evaluation of Program Strategies and Implementation* (2011); Nat'l Research Council, *Missouri River Planning: Recognizing and Incorporating Sediment Management* (2011). Scientific studies demonstrate how tributaries significantly affect the functions and integrity of downstream waters through chemical, physical, and biological interrelationships, especially regarding how physical aspects (e.g., flow) can influence chemical processes (e.g., pesticide contamination), which in turn can affect the biological features (e.g., species) of a water. Below we highlight a few examples of connections between tributaries and primary waters.

We find evidence of strong chemical connections between tributaries and downstream primary waters in the movement of contaminants and pathogens. Sediment-laden waters typically transport some contaminants (such as mercury) from tributaries to downstream waters. *See* Willem Salomons & Ulrike Förtsner, *Metals in the Hydrocycle* (1984). Waterborne pathogens (such as bacteria and viruses) that originate from agricultural and municipal wastes are also transported to downstream waters through tributaries. *See* Pramod K. Pandey et al., *Contamination of Water Resources by Pathogenic Bacteria*, 4 AMB Express (2014); Cassandra C. Jokinen et al., *Spatial and Temporal Drivers of Zoonotic Pathogen Contamination of an Agricultural Watershed*, 41 J. Envtl. Quality 242–52 (2012); Isabelle Jalliffier-Verne et al., *Cumulative Effects of Fecal Contamination from Combined Sewer Overflows: Management for Source Water Protection*, 174 J. Envtl. Mgmt. 62–70 (2016). Pathogens may pose a risk to human health, highlighting the importance of regulating and protecting tributaries to ensure the integrity of primary waters.

Tributaries also have important physical connections with downstream primary waters. The water flow from tributaries helps to create and maintain river networks. Indeed, most of the water in most rivers comes from tributaries. *See, e.g.*, Richard B. Alexander et al., *The Role of Headwater Streams in Downstream Water Quality*, 43 J. Am. Water Resources Ass'n 41–59 (2007).

Furthermore, tributaries support the metabolism of river ecosystems. For example, they export organic matter (dissolved and particulate) that is incorporated into the food webs of downstream waters, and the resulting turbid water shades and protects fish and amphibians from damage by ultraviolet radiation. *E.g.*, Paul C. Frost et al., *Environmental Controls of UV-B Radiation in Forested Streams of Northern Michigan*, 82 Photochemistry & Photobiology 781–86 (2006). Other biological connections relate to the passive and active transport of living organisms. *See* Judy L. Meyer et al., *The Contribution of Headwater Streams to Biodiversity in River Networks*, 43 J. Am. Water Resources Ass'n 86 (2007) (discussing how organisms rely on streams); Moreno-Mateos & Palmer, *supra*; Carol A. Johnston, *Beaver Wetlands*, in *Wetland Habitats of North America: Ecology and Conservation Concerns* 161–72 (Darold P. Batzer & Andrew H. Baldwin eds., 2012).

Accordingly, the Clean Water Rule's categorical treatment of tributaries reflects scientific reality.

IV. Best available science supports the Clean Water Rule's categorical treatment of adjacent waters based on geographic proximity.

Our research demonstrates that adjacent waters warrant regulation under the Clean Water Rule because of their chemical, physical, and biological connections to downstream primary waters.

A. Compelling scientific evidence demonstrates that waters within 100 feet of an OHWM significantly affect the chemical, physical, and biological integrity of primary waters.

Waters, including wetlands, ponds, oxbows, and impoundments, within 100 feet of an OHWM are "hotspots" of ecological function/processes and species diversity affecting the flux of materials (water, sediment, energy, organic matter, pollutants, and organisms) to primary waters. *See* Peter M. Groffman et al., *Down by the Riverside: Urban Riparian Ecology*, 1 Frontiers Ecology & Env't 315–21 (2003). These adjacent waters affect the movement of pollutants from uplands into streams and rivers; regulate stream temperatures, light, and flow regimes; reduce downstream flooding; and provide nursery areas and critical habitat for aquatic biota, including threatened and endangered species. *See* J. V. Ward et al., *Riverine Landscape Diversity*, 47 Freshwater Biology 517–39 (2002). Riparian wetlands act as buffers, effectively reducing concentrations of nutrients and other pollutants. For example, riparian wetlands may remove up to 100% of the nitrate-nitrogen that enters them. *See* M. S. Fennessy & J. Cronk, *The Effectiveness and Restoration Potential of Riparian Ecotones for the Management of Nonpoint Source Pollution, Particularly Nitrate*, 27 Critical Revs. Envtl. Sci. & Tech. 285–317 (1997). Nitrate is a serious water pollutant and a major contributor to coastal algal blooms, as in the Gulf of Mexico's hypoxic "dead zone," as well

as nuisance algal blooms in many other surface waters. *See* William J. Mitsch et al., *Nitrate-Nitrogen Retention in the Mississippi River Basin*, 24 Ecological Engineering 267–78 (2005).

These adjacent waters can act as sources, sinks, or transformers of materials from upland habitats. As sources, adjacent waters contribute organic materials, such as leaf litter, that provide food (energy) for many in-stream species. *See* Robin L. Vannote et al., *The River Continuum Concept*, 37 Canadian J. Fisheries & Aquatic Sci. 130–37 (1980). They also carry woody debris, which increases habitat complexity and biodiversity. *See* J. David Allan, *Stream Ecology: Structure and Function of Running Waters* (1st ed. 1995); J. V. Ward et al., *Riverine Landscape Diversity*, 47 Freshwater Biology 517–39 (2002).

Adjacent waters are also major sinks for materials. By capturing and storing sediment eroded from nearby uplands, they reduce downstream sediment transport and its negative effects on fish feeding and spawning, macroinvertebrate communities, and overall habitat quality. *See* C. P. Newcombe & D. D. MacDonald, *Effects of Suspended Sediments on Aquatic Ecosystems*, 11 N. Am. J. Fisheries Mgmt. 72–82 (1991). These adjacent waters convert materials from one form to another; plants and algae can consume nutrients and bind them in their tissues, reducing the risk of downstream eutrophication. Wetlands in particular mitigate nonpoint source pollution, such as insecticides and fertilizers, thus

protecting stream water quality and drinking water supplies. *E.g.*, Robert Everich et al., *Efficacy of a Vegetative Buffer for Reducing the Potential Runoff of the Insect Growth Regulator Novaluron*, in *Pesticide Mitigation Strategies for Surface Water Quality* 175–88 (2011); Mitsch et al., *supra*. Adjacent waters also slow the movement of materials and biota, by providing temporary storage of excess water during times of high precipitation to dissipate the energy of flows (reducing erosion and soil loss) and attenuate flood peaks. *See* William J. Mitsch & J. Gosselink, *Wetlands* (5th ed. 2015).

Hydrologic connections do not need to be continuous to have a substantial effect on downstream primary waters. Hydrologic connectivity involves longitudinal, lateral, and vertical exchange, and adjacent waters are intimately linked to streams and rivers both in space (i.e., proximity to the OHWM), and time (e.g., by means of high water and flood events). Seasonal high water levels increase connectivity, promoting the lateral movement of animals between lakes, wetlands, stream channels, and their adjacent waters. This facilitates use of critical spawning and nursery habitats by fish, and supports the biological integrity of the system. Many fish are sustained by varied habitats dispersed throughout the watershed for spawning, nurseries, growth, and maturation. *See* Kurt D. Fausch et al., *Landscapes to Riverscapes: Bridging the Gap Between Research and Conservation of Stream Fishes*, 52 BioScience 483–98 (2002).

Overall, the benefits of protecting waters within 100 feet of an OHWM accrue both locally (at that point on the river system) and cumulatively (at the watershed scale). The Clean Water Rule's categorical inclusion of these adjacent waters reflects scientific reality.

B. Compelling scientific evidence demonstrates that waters within 100-year floodplains significantly affect the chemical, physical, and biological integrity of primary waters.

The Clean Water Rule's coverage of waters within 100-year floodplains is based on scientific understanding of watershed dynamics. These dynamics include not only surface expressions of connectivity (floods), but also underlying hydrologic conditions.

Every primary water has a watershed, which can be described as the land area that drains into that primary water and its tributaries. *See* Paul R. Bierman & David R. Montgomery, *Key Concepts in Geomorphology* (2014). During any flood event, primary waters and their tributaries may overflow their banks. *Id.* The proportion of land that becomes obviously flooded (the "floodplain") depends upon rate and total amount of rainfall. The geographic extent of the floodplain also depends upon the watershed's topography, soil saturation, and geological characteristics. *See* W. R. Osterkamp & J.M. Friedman, *The Disparity Between Extreme Rainfall Events and Rare Floods—With Emphasis on the Semi-Arid American West*, 14 Hydrological Processes 2817–29 (2000). A landscape with

more topographic relief (steeper) will have a smaller floodplain than a flatter landscape where floodwaters more readily spread outward. *See* A.D. Howard, *Modelling Channel Evolution and Floodplain Morphology*, in *Floodplain Processes* 15–62 (Malcolm G. Anderson et al. eds., 1996).

Although every flood is unique in extent and duration, we describe floodplains statistically to characterize other hydrologic (non-flooding) features. *See* G. R. Pandy & V.-T.-V. Nguyen, *A Comparative Study of Regression Based Methods in Regional Flood Frequency Analysis*, 225 J. Hydrology 92–101 (1999). For example, the "100-year floodplain" represents the land area covered by floodwaters that have a 1% chance of occurring in any given year (1/100 likelihood). This definition is entirely statistical; such floods can occur more often in a 100-year floodplain, even two years or more in a row. It is incorrect to conclude that waters on a 100-year floodplain have a connection with a primary water only once in a century because the actual hydrologic connections extend beyond surface flooding alone.

Furthermore, changes in land use can affect flood dynamics. Increasing the proportion of the landscape that is covered with impermeable surfaces (such as streets and roofs) may increase flood intensity and duration. *See* E. S. Bedan & J.C. Clausen, *Stormwater Runoff Quality and Quantity from Traditional and Low*

Impact Development Watersheds, 4 J. Am. Water Resources Ass'n 998–1008 (2009).

Floodwaters are only the surface expressions of a flood. Rainfall permeates into the soil and often moves underground toward open waterbodies, such as primary waters. *See* William M. Alley et al., *Flow and Storage in Groundwater Systems*, 296 Sci. 1985–90 (2002); Florian Malard et al., *A Landscape Perspective of Surface-Subsurface Hydrological Exchanges in River Corridors*, 47 Freshwater Biology 621–40 (2002). Groundwater movement occurs in the absence of a 100-year flood. The results from tracing techniques demonstrate how large proportions of streamflow are derived from groundwater. *E.g.*, Alley et al., *supra*.

We in the water science community understand that factors other than surface flooding determine the actual extent of hydrologic connections between waters in a floodplain. The direction of movement and the rate at which the water moves depends upon topography, geology, and rainfall. *See* Jack A. Stanford & J.V. Ward, *An Ecosystem Perspective of Alluvial Rivers: Connectivity and the Hyporheic Corridor*, 12 J. N. Am. Benthological Soc'y 48–60 (1993); Alley et al., *supra*. Impermeable subsurface layers, like clay layers under sand and/or limestone in Florida, can reduce the downward movement of water and force it to move laterally. *See* Peter W. Bush & Richard H. Johnston, *Ground-Water Hydraulics, Regional Flow, and Ground-Water Development of the Floridan Aquifer System in*

Florida and in Parts of Georgia, South Carolina, and Alabama: Regional Aquifer-System Analysis (U.S. Geological Survey, Professional Paper 1403-C, 1988), *available at* https://pubs.usgs.gov/pp/1403c/report.pdf. Often subsurface impermeable (or semi-permeable) layers are not level; they may slope toward waterbodies, and this subsurface lateral flow may re-emerge in a surface waterbody, such as a primary water. However, subsurface lateral flow can occur even without sloping impermeable layers; when more water pools in a particular subsurface location, lateral flow will occur from areas of higher pressure to areas of lower pressure, which may be river channels, wetlands, or lakes. *See* Jacob Bear, *Hydraulics of Groundwater* (2012).

Many different types of waterbodies can occur in 100-year floodplains. Tributaries and other waters can be connected to a primary river in more than one way. *See* C. Amoros & G. Bornette, *Connectivity and Biocomplexity in Waterbodies of Riverine Floodplains*, 47 Freshwater Biology 761–76 (2002). Headwaters and tributaries may flow directly into primary waters, adding organic matter and constituents that create unique water chemistry in the primary water. *See* Takashi Gomi et al., *Understanding Processes and Downstream Linkages of Headwater Systems: Headwaters Differ from Downstream Reaches by Their Close Coupling to Hillslope Processes, More Temporal and Spatial Variation, and Their Need for Different Means of Protection from Land Use*, 52 BioScience 905–16

(2002). Wetlands may border primary waters, buffering the input of floodwaters, altering the water chemistry of floodwaters and the primary water itself, and providing habitat and resources for local biota. *See* Joy B. Zedler, *Wetlands at Your Service: Reducing Impacts of Agriculture at the Watershed Scale*, 1 Frontiers in Ecology & Env't 65–72 (2003).

Even other waterbodies with no obvious surface connections to primary waters may still be hydrologically connected to them. Lakes, ponds, wetlands, and streams that flow into these apparently isolated waterbodies may have no surface connections to the primary water but, in addition to storing water as previously described, can have subsurface connections through groundwater. Bear, *supra*. These subsurface connections can carry water to primary waters; for example, water seeping down out of an apparently isolated waterbody may hit an impermeable layer and move laterally until it emerges in the primary waterbody. *See* Geoffrey C. Poole, *Fluvial Landscape Ecology: Addressing Uniqueness Within the River Discontinuum*, 41 Freshwater Biology 641–60 (2002). Therefore, loss of an apparently isolated waterbody can reduce water volume and alter flow characteristics of a primary water.

Evidence for these connections can be observed in the physical and chemical properties of primary waters. *See* Malard et al., *supra*. Temperature, alkalinity, salinity, nitrate, other chemicals and pollutants, and dyes have been used as tracers

to show the impact of groundwater connections to surface waters. *See* C. Soulsby et al., *Inferring Groundwater Influences on Surface Water in Montane Catchments from Hydrochemical Surveys of Springs and Streamwaters*, 333 J. Hydrology 199–213 (2007). Furthermore, additions of pollutants into apparently isolated waterbodies or disparate areas of the watershed can affect primary waters. *See* David N. Lerner & Bob Harris, *The Relationship Between Land Use and Groundwater Resources and Quality*, 26 Land Use Pol'y S265–S273 (2009). Tracer and stable isotope studies have established the path and rate of water movements in Florida, substantiating that a distant source can pollute primary waters. *See* M. Badruzzaman et al., *Sources of Nutrients Impacting Surface Waters in Florida: A Review*, 109 J. Envtl. Mgmt. 80–92 (2012). These studies highlight the chemical, physical, and biological connections between a primary water and other waterbodies that are located within its 100-year floodplain, thus justifying the inclusion of these adjacent waters in the Clean Water Rule.

C. Compelling scientific evidence demonstrates that waters within 1500 feet of high tide lines of tidally influenced primary waters or OHWMs of the Great Lakes significantly affect the integrity of these primary waters.

Scientific evidence strongly supports protecting waters located within 1500 feet of such primary waters. These waters have the same types of connections and functions as the tributaries and other adjacent waters discussed *supra*. Adjacent waters within 1500 feet of primary waters have important chemical connections to

those waters. Adjacent waters that were thought to be isolated have become more saline, providing empirical data regarding the groundwater connection between adjacent waters and primary waters. *See, e.g.*, Cameron Wood & Glenn A. Harrington, *Influence of Seasonal Variations in Sea Level on the Salinity Regime of a Coastal Groundwater-Fed Wetland*, 53 Groundwater 90–98 (2014). In addition, adjacent waters in the 1500-foot zone may release freshwater into coastal waters, thereby reducing the salinity of these waters. *See, e.g.*, Fred H. Sklar & Joan A. Browder, *Coastal Environmental Impacts Brought About by Alterations to Freshwater Flow in the Gulf of Mexico*, 22 Envtl. Mgmt. 547–62 (1998).

Indeed, the inputs of groundwater into coastal waters are quite large, and groundwater can contain high levels of dissolved solids and nutrients. *See, e.g.*, Willard S. Moore, *Large Groundwater Inputs to Coastal Waters Revealed by 226-Ra Enrichments*, 380 Nature 612–614 (1996); Matthew A. Charette et al., *Utility of Radium Isotopes for Evaluating the Input and Transport of Groundwater-Derived Nitrogen to a Cape Cod Estuary*, 46 Limnology & Oceanography 465–70 (2001); J. M. Krest et al., *Marsh Nutrient Export Supplied by Groundwater Discharge: Evidence from Radium Measurements*, 14 Global Biogeochemical Cycles 167–76 (2000). As in inland systems, coastal wetlands remove nutrients, such as nitrate, thereby reducing down-gradient eutrophication in primary waters. *See* Marcelo Ardón et al., *Drought-Induced Saltwater Incursion Leads to Increased Wetland*

Nitrogen Export, 19 Global Change Biology 2976–85 (2013). Thus, adjacent waters protect and improve the quality of primary waters by removing harmful contaminants or transforming and transporting nutrients to primary waters. *See* Clifford N. Dahm, *Nutrient Dynamics of the Delta: Effects on Primary Producers*, 14 S.F. Estuary & Watershed Sci. Art. 4 (2016).

Adjacent waters also physically influence primary waters through surface and subsurface connections. *See* Figure 2. Adjacent waters contribute flow to

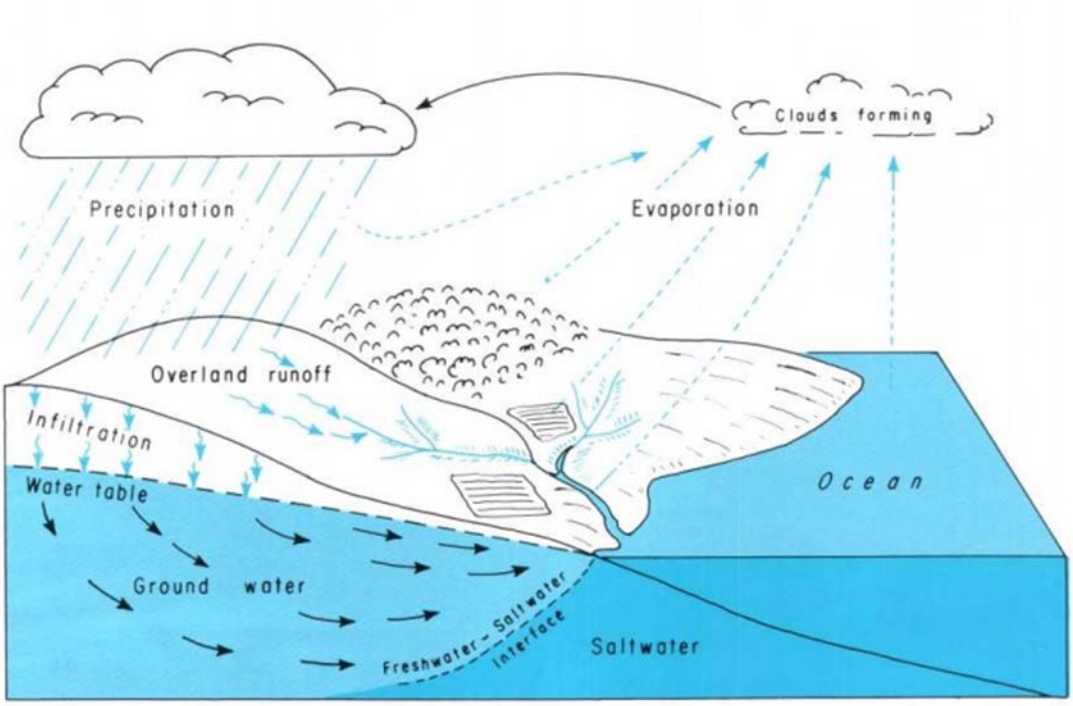

Figure 2. Freshwater-Saltwater Interface. Adapted from Ralph C. Heath, *Basic Ground-Water Hydrology* (U.S. Geological Survey, Water-Supply Paper 2220, 1998), *available* at http://pubs.er.usgs.gov/pubs/wsp/wsp2220.

nearby primary waters and retain floodwaters and sediments. *See, e.g.*, Paul M. Barlow, *Ground Water in Freshwater-Saltwater Environments of the Atlantic*

Coast (U.S. Geological Survey, Circular 1262, 2003), *available at* https://pubs.usgs.gov/circ/2003/circ1262/pdf/circ1262.pdf. Further, adjacent waters have a significant impact on the biological integrity of primary waters. Wetlands near tidally influenced primary waters can serve as a critical source of freshwater for some species that use wetlands and coastal waters. *See Technical Support Document*, *supra*, at 292–93. Adjacent wetlands, lakes, ponds, and other waters also provide important foraging and breeding habitat for coastal species. *See, e.g.*, David J. Jude & Janice Pappas, *Fish Utilization of Great Lakes Coastal Wetlands*, 18 J. Great Lakes Res. 651–72 (1992); Michael E. Sierszen et al., *A Review of Selected Ecosystem Services Provided by Coastal Wetlands of the Laurentian Great Lakes*, 15 Aquatic Ecosystem Health & Mgmt. 92–106 (2012).

Distance is but one factor that affects the connectivity between waters, and as with the other geographical distance limitations discussed *supra*, the agencies' selection of 1500 feet as the distance limitation is conservative from a scientific perspective. Indeed, waters located beyond this threshold can be chemically, physically, and biologically connected to tidally influenced primary waters or the Great Lakes. While the categorical jurisdictional line could have been drawn farther from high tide lines, we find strong scientific support connecting the majority of lakes, wetlands, ponds, and other waters located within this 1500-foot area to primary waters.

Once again, the Clean Water Rule's categorical inclusion of these adjacent waters reflects scientific reality.

V. Conclusion

The U.S. Supreme Court has held that federal agencies may protect waters on a categorical basis if most waters in that category have a significant effect on primary waters. The best available science overwhelmingly demonstrates that the waters treated categorically in the Clean Water Rule have significant chemical, physical, and biological connections to primary waters. Accordingly, we write in support of upholding the Clean Water Rule.

Date: January 20, 2017

Respectfully submitted,

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Date: January 20, 2017

/s/ Royal C. Gardner
Royal C. Gardner

CERTIFICATE OF SERVICE

I hereby certify that on January 20, 2017, I electronically filed a true and correct copy of the foregoing Brief of Dr. M. Siobhan Fennessy, Dr. Carol A. Johnston, Dr. Marinus L. Otte, Dr. Margaret Palmer, Dr. James E. Perry, Professor Charles Simenstad, Dr. Benjamin R. Tanner, Dr. Dan Tufford, Dr. R. Eugene Turner, Dr. Kirsten Work, Dr. Scott C. Yaich, and Dr. Joy B. Zedler as Amici Curiae in Support of Respondents and in Support of Upholding the Clean Water Rule with the Clerk of the Court for the United States Court of Appeals for the Sixth Circuit using the Court's appellate CM/ECF system, which will send notification of this filing to the attorneys of record.

Date: January 20, 2017

/s/ Royal C. Gardner
Royal C. Gardner

ADDENDUM

Amici Curiae Biographies[2]

Dr. M. Siobhan Fennessy is the Jordan Professor of Biology and Environmental Studies at Kenyon College where she teaches and conducts research on wetland ecosystems. She serves on the National Research Council's Water Science and Technology Board, and had been appointed to two NRC committees. A Fulbright Fellow, she was recently appointed to the Intergovernmental Platform on Biodiversity and Ecosystem Services for the global assessment of land degradation and restoration, and to the Ramsar Convention's Scientific and Technical and Review Panel.

Dr. Carol A. Johnston is a Professor at South Dakota State University, where she teaches ecology and environmental science. She served on the National Research Council's Water Science and Technology Board and on NRC committees studying wetland mitigation, wetland delineation, and watershed management. She is a Fellow of the Society of Wetland Scientists, and received the National Wetlands Award for Science Research from the Environmental Law Institute in 2009.

Dr. Marinus L. Otte is a Professor in the Department of Biological Sciences at North Dakota State University, and has been specializing in many aspects of wetland science for more than 25 years. He has worked on both coastal and inland wetlands in the United States (Minnesota, North Dakota, and South Carolina), China, Ireland, and the Netherlands. He teaches Wetland Science, Ecotoxicology, Environmental Science, and Plant Systematics. He has served as Editor-in-Chief of the scientific journal *Wetlands* since 2012.

Dr. Margaret Palmer is Director of the National Socio-Environmental Synthesis Center, a National Science Foundation and University of Maryland supported research center. A Distinguished University Professor at the University of Maryland, she oversees a research group focused on watershed science and restoration ecology. Having worked on streams, wetlands, and estuaries for more than 30 years, she is past Director of the Chesapeake Biological Laboratory, currently serves on the editorial boards of the journals *Restoration Ecology* and *Science*, and is an elected fellow of the Society for Freshwater Science.

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[2] Affiliations of amici curiae and their counsel are provided for identification purposes only.

Dr. James E. Perry is a Professor of Marine Science at the College of William and Mary's Virginia Institute of Marine Science. A past president of the Society of Wetland Scientists (SWS), he has overseen its Professional Certification Program and its Ethics Committee. He is also a member of the Coastal and Estuarine Research Federation, Ecological Society of America, and Society of Ecological Restoration. He has published over 50 peer-reviewed journal articles and book chapters.

Charles Simenstad is a Research Professor in the School of Aquatic and Fishery Sciences, at the University of Washington, where he focuses on the structure and function of tidal wetlands within the broader landscape context of estuarine and coastal ecosystems. He is Co-Editor-in-Chief of the scientific journal *Estuaries and Coasts*, serves on the Environmental Advisory Board to the Chief of the U.S. Army Corps of Engineers, and contributed to the NRC Committee on Compensating for Wetland Losses.

Dr. Benjamin R. Tanner is an Assistant Professor of Environmental Science and Studies at Stetson University, where his research focuses on wetland sediment records of environmental change. He has worked on both tidal saline and inland freshwater wetlands at multiple sites in Florida, the Carolinas, and Maine. He teaches advanced courses on wetland systems, soils and hydrology, and wetland identification and delineation.

Dr. Dan Tufford focuses his research on watershed ecology and water resources management. His work ranges from field studies to simulation modeling and includes water quality, hydrology, and landscape interactions. His recent projects include integrating climate science and water management, and watershed modeling for the North Inlet-Winyah Bay National Estuarine Research Reserve. He is currently a member of the Board of Directors for the Columbia Audubon Society and on the state Advisory Board for Audubon South Carolina.

Dr. R. Eugene Turner is the 71st Boyd Professor in the Louisiana State University System where he teaches restoration and wetland ecology courses and maintains a healthy research program. He has been Chair or Co-Chair of the INTECOL Wetlands Working Group (WWG) since 1976, Executive Board Member of INTECOL and of the non-profit Green Lands, Blue Waters, and serves on various national scientific committees, and two editorial boards. He has been on NRC committees including the Committee on Compensating for Wetland Losses.

Dr. Kirsten Work is a Professor in the Stetson University Biology Department. Over the course of her career, she has studied a broad range of freshwater systems, from lakes in the upper Midwest and Alaska to streams, rivers, and reservoirs in the Great Plains to springs, lakes, and wetlands in Florida. She is particularly interested in the role of disturbance aquatic on ecosystem function. Her current studies focus on fish diversity in Florida springs.

Dr. Scott C. Yaich has worked in the field of wetland conservation for over 30 years, has been a Certified Wetland Scientist, and is a Certified Wildlife Biologist. He worked as the Wetlands and Waterfowl Program Coordinator, Chief of Wildlife Management, and Assistant Director of Conservation for the Arkansas Game and Fish Commission, and as a specialist in wetland habitat conservation for the U.S. Fish and Wildlife Service. He also served as staff and Council member of the North American Wetlands Conservation Council.

Dr. Joy B. Zedler is Professor Emerita (Botany and Aldo Leopold Professor of Restoration Ecology) at the University of Wisconsin-Madison. She continues to publish her wetland ecology research, to advise on Adaptive Restoration, and to help edit two journals, *Restoration Ecology* and *Ecosystem Health and Sustainability*. She is a member of the California Delta's Independent Science Board and a Trustee of the Wisconsin Chapter of The Nature Conservancy. She served on four NRC committees and chaired its Committee on Mitigating Wetland Losses.

Revised and submitted for the record 5.28.15
with additional scientist signatures

May 18, 2015

The Honorable Dan Sullivan
Chairman
Subcommittee on Fisheries, Water, and Wildlife
Committee on Environment and Public Works
U.S. Senate
Washington, D.C. 20510

The Honorable Sheldon Whitehouse
Ranking Member
Subcommittee on Fisheries, Water, and Wildlife
Committee on Environment and Public Works
U.S. Senate
Washington, D.C. 20510

Re: Scientists Strongly Oppose S.1140, Legislation Undermining Needed Protections for the Nation's Streams, Wetlands, and Other Waters

Chairman Sullivan and Ranking Member Whitehouse:

The undersigned scientists strongly oppose S.1140, misleadingly titled the "Federal Water Quality Protection Act." S.1140 would derail a near-final rulemaking process to clarify the Clean Water Act. The rulemaking has the potential to restore longstanding protections for millions of wetlands and headwater streams that contribute to the drinking water of 1 in 3 Americans, protect communities from flooding, and provide essential fish and wildlife habitat.

Of central concern to us as scientists is that the bill disregards the rigorous science on which the Clean Water Rule is based, hamstringing the agencies' ability to protect many of the small, seasonal, and rain-dependent streams, water bodies nearby such tributaries, and various other waters the science shows are critical to water quality.

As scientists who have spent careers studying streams and wetlands, we are aware of the need to restore protections for these aquatic ecosystems under the Clean Water Act. For years now we have urged the Administration to address this issue through a rulemaking to clarify which waters are protected. To inform this critically important rulemaking, we have joined many of our colleagues in contributing to the Environmental Protection Agency's ambitious connectivity science report, *Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* (2014). We have contributed to the underlying peer-reviewed scientific studies, informal reviews of the draft Connectivity Report, and the formal Science Advisory Board peer review of the Connectivity Report. The undersigned are professional scientists with broad knowledge and expertise in stream and wetland ecosystems, including their physical structure, chemistry, and biology. The scientists who have signed this letter include leading researchers on the ecology, water quality, and biota of rivers, streams, and wetlands.

Now, just as the agencies are on the verge of finalizing this important science-based rulemaking, S. 1140 would not only derail this rulemaking, but seeks to prohibit any future rulemaking that does not meet its "principles;" "principles" that disregard the connectivity science – as well as the goals, framework, and legislative intent of the 1972 Clean Water Act. S. 1140 hamstrings the

agencies' ability to protect many of the small, seasonal, and rain-dependent streams, water bodies nearby such tributaries, and various other waters the science shows are critical to "maintaining and restoring the physical, chemical, and biological integrity of the nation's waters."

Wetland and stream science has consistently demonstrated the importance of small streams and wetlands for flood control, groundwater recharge, reducing concentrations of pollutants in drinking water sources, reducing erosion, and providing essential habitat for plant and animal species, all of which provide significant public benefit.

Below, borrowing from our 2011 letter to the Council on Environmental Quality, and updated with quotes from the Science Advisory Board 2014 letter to the Environmental Protection Agency regarding the scientific basis of the proposed rule, we briefly outline basic principles and findings of connectivity science that are rejected by S. 1140, but must be reflected in the Clean Water Rule in order to meet the goals of the Clean Water Act:

1. Rivers are networks, and their downstream navigable portions are inextricably linked to small headwaters just as fine roots are an essential part of the root structure of a tree or our own circulatory system is dependent on the function of healthy capillaries. The small intermittent stream is not isolated from the mighty river. Longstanding and robust scientific research has demonstrated the longitudinal connectivity of river networks, i.e., that **ecological processes in navigable rivers reflect what is occurring in their headwaters as well as in associated geographically isolated wetlands, floodplains, and tributaries.**

2. **A sizable fraction of channel length in a river network is in intermittent and headwater streams.** In arid states such as Arizona, Utah, and Colorado, from 71 to 96% of stream miles have been classified as ephemeral or intermittent. Intermittent streams are also significant in states that receive more rainfall. In Alabama, 80% of stream miles in the National Forests are considered intermittent because they go dry during late summer or autumn; intermittent streams in Michigan comprise 48% of the length of stream channels in the state. These examples illustrate the extent of intermittent streams in river networks throughout the Nation.

3. As the SAB concluded from the 2014 *Connectivity Report:*

   There is strong scientific evidence to support the EPA's proposal to include all tributaries within the jurisdiction of the Clean Water Act. Tributaries, as a group, exert strong influence on the physical, chemical, and biological integrity of downstream waters, even though the degree of connectivity is a function of variation in the frequency, duration, magnitude, predictability, and consequences of physical, chemical and biological processes.

4. From a wetland perspective, the EPA and Army Corps of Engineers estimate that over 20 million acres of wetlands in the contiguous 48 states could be considered "geographically isolated." Despite often not having a connection to navigable waters that is direct or that exists throughout the year, **the scientific literature demonstrates that these wetlands**

are nevertheless often interconnected with navigable waters and are often not ecologically and/or hydrologically isolated.

5. As the SAB concluded from the 2014 *Connectivity Report:*

   The available science supports the EPA's proposal to include adjacent waters and wetlands as waters of the United States. This is because **adjacent waters and wetlands have a strong influence on the physical, chemical, and biological integrity of navigable waters. Importantly, the available science supports defining adjacency or determination of adjacency on the basis of functional relationships, not on how close an adjacent water is to a navigable water. The Board also notes that local shallow subsurface water sources and regional groundwater sources can strongly affect connectivity.** Thus, the Board advises the EPA that adjacent waters and wetlands should not be defined solely on the basis of geographical proximity or distance to jurisdictional waters.

6. The SAB also concluded:

   The scientific literature has established that "other waters" can influence downstream waters, particularly when considered in aggregate. Thus, it is appropriate to define "other waters" as waters of the United States on a case-by-case basis, either alone or in combination with similarly-situated waters in the same region.

7. The SAB further concluded:

   There is also adequate scientific evidence to support a determination that certain subcategories and types of "other waters" in particular regions of the United States (e.g., Carolina and Delmarva Bays, Texas 18 coastal prairie wetlands, prairie potholes, pocosins, western vernal pools) are similarly situated (i.e., they have a similar influence on the physical, biological, and chemical integrity of downstream waters and are similarly situated on the landscape) and thus are waters of the United States.

8. And furthermore:

   … [A]s the science continues to develop, other sets of wetlands may be identified as "similarly situated." The Board notes, however, that **the science does not support excluding groups of "other waters" (or subcategories of them, e.g., Great Plains playa lakes) that may influence the physical, chemical and biological integrity of downstream waters.**

9. The SAB also advised EPA:

The available science, however, shows that groundwater connections, particularly via shallow flow paths in unconfined aquifers, are critical in supporting the hydrology and biogeochemical functions of wetlands and other waters. Groundwater also connects waters and wetlands that have no visible surface connections.

10. And that:

    …[T]here is a lack of scientific knowledge to help discriminate between ditches that should be excluded or included. For example, many ditches in the Midwest would be excluded under the proposed rule because they were excavated wholly in uplands, drain only uplands, and have less than perennial flow. However, these ditches may drain areas that would be identified as wetlands under the Cowardin classification system and may provide certain ecosystem services."

11. **Small streams and wetlands contribute to the physical integrity of navigable rivers.** They provide hydrologic retention capacity (i.e., the ability to hold and store water), and when they have been eliminated as a result of human activity, the frequency and intensity of flooding increases downstream, and base flows are lower. For example, studies have shown that the loss of two-thirds, or about 14 million acres, of prairie pothole wetlands (considered within the "geographically isolated wetland" designation) has contributed significantly to increases in the flooding and associated damages of the Red River and other navigable rivers of the region. Small streams and wetlands also improve water quality by storing eroded sediment, thereby reducing downstream sediment transport during storms, and are critically important in recharging groundwater and other sources of water for drinking, irrigation and industry.

12. **Small streams and wetlands also contribute to the chemical integrity of navigable rivers.** These are the channels of the drainage network in closest contact with the soil and are the sites of extensive chemical and biological activity that influences water quality downstream. Small streams and wetlands are the sites of active uptake, transformation, and retention of nutrients; their degradation results in increased downstream transport of nutrients, which can result in eutrophication (e.g., nuisance algal blooms) of downstream rivers, lakes, and estuaries. Nutrients and contaminants enter streams from non-point sources primarily during storms, and it is during storms when small streams and wetlands are most likely to contain water and provide nutrient removal services. Likewise, Delmarva bay wetlands provide similar water quality protection and improvement functions for water that flows through them in transit to the Chesapeake Bay. Likewise, playa lake wetlands of the southern Great Plains, a class of "geographically isolated wetland," collect and improve the quality of water that ultimately filters through them and recharges the Ogallala aquifer, which provides drinking and irrigation water for eight states.

13. **Small streams and wetlands contribute to the biological integrity of navigable rivers.** They supply food resources to riparian and downstream ecosystems. For example,

invertebrate inhabitants of headwater streams are sources of food to fish, and emerging aerial adults of aquatic insects provide food for birds and bats. Small streams provide a thermal refuge at critical life history stages or during critical times of the year for many fish species. They also serve as vital spawning and nursery habitats for many fish species including many prized sport fishes. Small streams and wetlands also provide critical habitat for unique and threatened species of invertebrates, amphibians and fishes. For example, prairie potholes provide the breeding habitat that produces an estimated 50-70% of the total annual duck production in North America. Approximately one-half of the continent's bird species are wetland-dependent or associated, and most of these are migratory birds shared across international borders and by all states in each of the four flyways covering the U.S.

Small streams and wetlands are an integral part of the nation's network of waters, and provide numerous ecological goods and services of significant value to society. Although they may not have a permanent or direct hydrologic connection to a navigable river, they have a demonstrable functional connection with and a direct impact on the physical, chemical, and biotic integrity of navigable rivers.

On the basis of decades of scientific research, it is clear that small streams and wetlands are not isolated or unrelated to the ecological integrity of navigable waterways. If our nation hopes to achieve the goals of the Clean Water Act, small streams and wetlands must remain within its jurisdiction.

S. 1140 rejects these key scientific principles and findings, undermining our ability to protect and restore our nation's streams, lakes, rivers, wetlands and bays.

- **Many streams would be harder to protect.** The bill would include streams identified in a USGS data set that, among other limitations, doesn't generally pick up streams that are less than a mile long. The bill erects an enormous hurdle to including additional streams, requiring a showing that pollutants from any single stream reach would degrade water quality in a navigable waterway.

- **Wetlands bordering tributary streams would also be hard to protect** – the bill appears to require a wetland-by-wetland analysis of their capacity to prevent pollutants moving into navigable waterways.

- **So-called "isolated" waters would not be protected.** The bill would exclude any "isolated pond, whether natural or manmade," and would only allow the protection of wetlands that are "next to" other protected waterways. The effect of these exemptions would be to allow dumping of wastes into wetlands or ponds, even with substantial groundwater connections to other waterways, and even if they help keep downstream waters safe and clean by trapping flood water or filtering out pollution.

- **The bill appears to exclude certain long-protected water bodies by narrowly defining "body of water" to ignore many man-made tributaries, even where they**

essentially function as natural streams, and even though such waters have significant impacts on downstream waters.

- **The bill rejects jurisdiction based on the use of waters by fish, wildlife, or any "organism,"** despite the science and the law supporting protections based on biological factors, such as for waters providing fish spawning grounds.

- **The bill ignores the science and the law supporting protections based on physical factors, such as for upstream waters contributing to or helping abate downstream flooding.**

- **The bill also rejects the strong science affirming that the collective function of these waters is closely related to downstream water quality.**

We are on the verge of securing a scientifically sound Clean Water Rule that will bolster the effectiveness of the Clean Water Act in maintaining and restoring our nation's waters. We urge Congress to support the agencies' final Clean Water Rule, respecting decades of robust scientific literature that demonstrate the critical role of aquatic systems and clarifying and restoring longstanding protections for these vital waters by clarifying their coverage under the Clean Water Act.

Respectfully Submitted,

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cc: Administrator McCarthy, Environmental Protection Agency
Asst. Secretary Darcy, United States Army Corp of Engineers
Secretary Vilsack, United States Department of Agriculture
Secretary Jewell, United States Department of Interior
Chair Christy Goldfuss, Council on Environmental Quality

TESTIMONY SUBMITTED FOR THE RECORD

SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

HEARING ON THE TECHNICAL, SCIENTIFIC, AND LEGAL BASIS FOR THE, CLEAN WATER RULE: DEFINITION OF 'WATERS OF THE UNITED STATES'

April 26, 2017

Dr. Michael Josselyn
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Introduction

Good morning, Mr. Chairman and members of the Committee. I am Michael Josselyn, Principal with the environmental consulting firm, WRA, Inc., with offices in California and Colorado. I am primarily responsible for assisting our federal, state, and private clients in compliance with Section 404 of the Clean Water Act. I have 38 years of experience in the field and am a Certified Professional Wetland Scientist. I served on the Environmental Protection Agency's Science Advisory Board Expert Panel (Panel) to review the EPA's *Connectivity Report*[1] which was prepared during the rulemaking process for the 2015 "Waters of the United States" (WOTUS) rule. My testimony today focuses on the Connectivity Report and the review process.

The draft Connectivity Report focused entirely on the scientific literature that was reviewed on the connection between headwaters, wetlands, and streams. The draft Report confirmed the basic hydrologic principle that all parts of a watershed are connected to some degree. Of course, the draft Report did not address the policy and legal questions on which waters should be federally regulated based on how that connectivity affects water quality in the Nation's navigable waters. The Report's conclusion that all water (and the material contained in it) flows downhill did not address the issue of where regulators should establish regulatory lines within the broad geographic landscape in the US.

The Panel recognized that concept of connectivity was a gradient, not a binary property (connected or not connected), and that connectivity should "recognize variation in the frequency,

[1] Environmental Protection Agency. 2015. Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence. EPA/600/R-14/475F

duration, magnitude, predictability, and consequences of those connections".[2,3] This is most important in those drainages with very infrequent flows—of a few days to weeks such as the intermittent and ephemeral streams referenced in Justice Kennedy's concurring *Rapanos* opinion. The Panel concluded that there was strong evidence on connectivity within tributary systems overall, however, it recommended that the "EPA should recognize that there is a gradient of connectivity"[4]. In addition, the draft Report did not provide metrics for how to quantify connectivity or consider methodological and technical advances that would support the EPA's and Corps' determinations regarding which waters are subject to federal jurisdiction.

The EPA adopted a WOTUS rule that redefined all tributaries as "waters of the US", no matter how small in volume or in frequency of flow. The definition also adopted distances for the inclusion of wetlands as adjacent to such tributaries. The Expert Panel specifically stated " that adjacent waters and wetlands should not be defined solely on the basis of geographical proximity or distance to jurisdictional waters"[5],[6]. In addition, the WOTUS rule set a low threshold for the inclusion of wetlands under the rule's significant nexus test procedure. It provided a list of nine general functions performed by wetlands and stated that if any one of them could be demonstrated to occur, either within the subject wetland or in combination with other wetlands within a very large watershed, it would have a significant nexus and be considered a "water of the US". Under this standard, there would be few situations where a wetland would not meet the significant nexus test. This is not consistent with the Panel's recommendation to consider connectivity on a gradient from high to no probability of an effect on downstream waters.

The Panel was initially convened to review the Connectivity Report, but was later asked to review the proposed rule. The proposed rule was issued before our review of the draft report was completed and the revised Connectivity Report issued. The Panel members did not reach a consensus on the proposed rule and the Panel letter was a compilation of comments from the Panel members.

I am a strong supporter of the use of evidence-based science in assisting agencies and legislators in developing regulatory policy. The Connectivity Report is a compilation of our knowledge about rivers and wetlands. The Panel recommendations were focused on the interpretation of the science. No new data analysis or scientific findings were established as a result of this effort. Most importantly, the Panel was told by the EPA that its job was not to establish criteria for regulatory decisions nor to evaluate legal interpretations of Supreme Court decisions.

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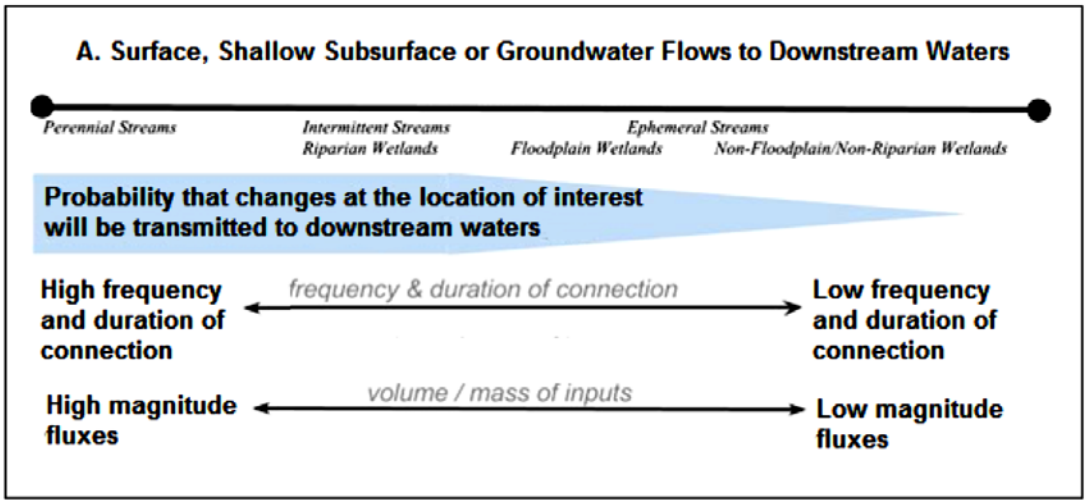
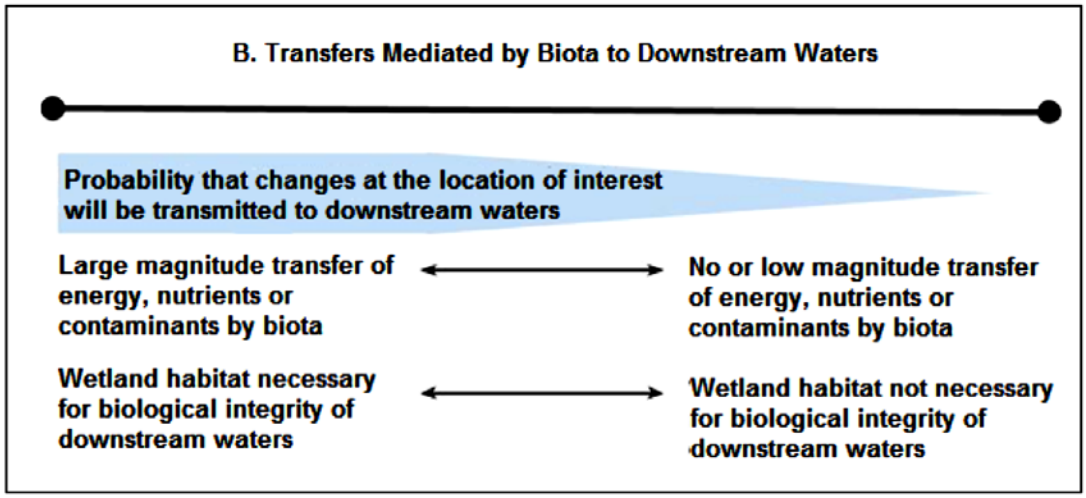
[2] Letter to Gina McCarthy. October 17, 2014 SAB Review of the Draft EPA Report Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence
[3] Page 2, Line 6
[4] Page 3, Line 5
[5] Letter to Gina McCarthy. September 30, 2014. Science Advisory Board (SAB) Consideration of the Adequacy of the Scientific and Technical Basis of the EPA's Proposed Rule titled "Definition of Waters of the United States under the Clean Water Act"
[6] Page 3, Line 5

Connectivity occurs on a Gradient

The Panel found that "the review of the scientific literature strongly supports the conclusion that streams and 'bidirectional' floodplain wetlands are physically, chemically, and/or biologically connected to downstream navigable waters; however, these connections should be considered in terms of a connectivity gradient"[7]. The presence of a gradient that defines the effects on downstream waters was not discussed in the draft version of the Connectivity Report; however, it became an important element in the discussions by the Panel. The Panel developed a figure to explain what was meant by its recommendation:





In the upper figure, the Panel concluded that there was a high probability (as shown by the width of the blue bar) that perennial streams and intermittent streams will have a high degree of connectivity to downstream waters given the frequency and duration of flow and the amount of

[7] Page 1, Line 5 of October 17, 2014 Letter

material that could be transported to those downstream waters. Similarly, for biological factors (shown in the lower portion of the figure), the scientific evidence that perennial and intermittent streams transported materials downstream was also high, with less probability associated with ephemeral streams. Riparian wetlands with direct connection to streams have a high probability of affecting downstream waters; whereas connectivity with floodplain and non-floodplain wetlands is much lower. The Panel repeatedly recommended that the EPA develop more quantitative measures and criteria to assess connectivity on this gradient.

The plurality opinion written by Justice Scalia in *Rapanos* stated that those perennial and intermittent streams including "seasonal rivers, which contain continuous flow during some months of the year but no flow during dry months" are "waters of the United States" and that wetlands, such as the riparian wetlands discussed by the Panel, which have a "continuous surface water connection" should also be regulated under the Clean Water Act. This is entirely consistent with the findings of the Panel that found a high probability that perennial and intermittent streams and the wetlands adjacent to them can affect water quality in downstream "navigable waters".

The degree of connectivity and the role of ephemeral streams and wetlands located far from tributaries is, of course, the subject of Justice Kennedy's concurring opinion that focused on a finding of a significant nexus to support the role of these features in affecting downstream water quality that is more than speculative or insubstantial. To that point, the scientific literature is less convincing and the Panel recommended more analysis and further study on those issues. The final Connectivity Report acknowledged the relatively small body of peer reviewed literature available on ephemeral streams and non-floodplain wetlands not connected with tributaries, particularly on their effect on downstream waters (see attached Table 6-2 in the Report). Nonetheless, the EPA concluded that all tributaries should be considered "waters" regardless of their flow regime whereas wetlands outside of floodplains required a significant nexus analysis.

The Panel was only provided a draft of the proposed Rule after it had completed the majority of its work reviewing the draft Connectivity Report. Thus, there was little opportunity to evaluate the context of how the science in the Connectivity Report would be used to inform the development of the WOTUS rule. The SAB requested panel members' view points on the proposed Rule; however, this was not accompanied by the usual robust discussion amongst Panel members. The resulting document prepared the Panel was a compendium of comments and, as noted in the September 2014 letter, did not represent a consensus opinion. It was my view[8], based on a review of the literature and my experience with arid western streams, that connectivity of <u>both</u> tributaries and wetlands occurs on a gradient. I provided the Panel with my analysis of references cited in the draft Connectivity Report showing only two studies (out of

[8] Shared with another Panel member, Dr. Mark Murphy, from Arizona, who also commented that the gradient approach to connectivity should also apply to tributaries as well as wetlands.

1000 cited in the draft report) actually reported on first order (headwater) streams and, in those studies, reduced ecological function was found in upstream reaches which supports the gradient theory. In addition, the lack of appropriate mapping scales for determining the distribution of headwater streams further limited the scientific literature on these features.

In my opinion, the scientific literature reviewed in the Connectivity Report supports the proposition that all parts of a watershed are connected to some degree and that connectivity occurs along a continuum. The Report leaves to policy makers to establish jurisdictional lines along the connectivity gradient based on many policy and legal considerations. These regulatory determinations would be better informed by a consideration of the technology and quantitative measures necessary to establish connectivity. There are likely ephemeral tributaries and wetlands that are close enough to traditional navigable waters (TNWs) and have sufficient volume and duration of flow to have an effect on those TNWs. What is lacking is the ability to establish a quantitative and objective method to separate them from those which do not have a significant effect.

Significant nexus determinations require more information

The Corps of Engineers which is responsible for implementing the *Rapanos* decision has also had problems in applying the significant nexus test. The EPA and the Corps issued guidance in 2007[9] to their staff and the public on how to make significant nexus determinations. This Guidance was published as a draft and the EPA and Corps received 66,000 comments. It was released as a final guidance document in 2008. It requires a multiple step process and establishment of specific analyses in order to determine that a significant nexus occurs. There are also multiple reviews required at both the Corps and EPA offices.

Jurisdictional determinations involving a significant nexus analysis are so complicated for Corps staff and so burdensome on landowners that, in 2008, the Corps began to offer a short cut by allowing landowners to opt for a "Preliminary Jurisdictional Determination" (PJD)[10]. The purpose of the PJD is to provide a "written indication that there may be waters of the United States, including wetlands, on a parcel" but does not exclude any wetlands or "waters" based on either the *SWANCC* or *Rapanos* Supreme Court decision. The reason given is that it allows landowners an opportunity to "expeditiously to obtain a Corps permit authorization" presumably due to the controversy and difficulty in obtaining an approved jurisdictional determination involving the significant nexus test. Many Corps District informed landowners that PJDs were the preferred method to assure rapid response to their permit applications.

[9] Environmental Protection Agency and Corps of Engineers. 2007. Jurisdictional Determination Form Instructional Guidebook.
[10] Corps of Engineers Regulatory Guidance Letter 08-02 Jurisdictional Determinations. June 26, 2008.

For those landowners that sought an Approved Jurisdictional Determination that included a significant nexus determination, the extended time for review and the undefined methodology to make that determination led to disputes over the findings. The Corps of Engineers does have an appeal process, but often those appeals result in remands to the District to provide more specific information on their significant nexus determination. Rarely have these significant nexus cases made it to Court, but the 4th Circuit Court of Appeals determined in the *Precon*[11] case, that the Corps must provide sufficient evidence in the record to show that there is a downstream effect on a navigable water from the upstream tributary or wetland. Mere citation of literature or general findings are insufficient. Some investigation is required to show a specific effect on downstream navigable waters. Other courts have reached similar decisions[12]. Since the Supreme Court decision in *Hawkes* allowing landowners to seek court review of jurisdictional determinations before the permitting process has been completed, we are likely to see more decisions related to the information necessary for a significant nexus determination to be upheld.

The point is that a finding a significant nexus must go beyond a list of citations or general assumptions on the functions of a tributary or wetland. It must include demonstrable evidence that specific actions in the subject "water" will affect downstream waters. The Courts have not gone so far as to require exhaustive site specific studies; however, they have required that information relevant to that particular water system be provided in order to meet Justice Kennedy's requirements that such evidence be more than speculative or insubstantial.

The Panel recommended that the EPA develop more detailed quantitative and methodology procedures in establishing a significant nexus. However, the WOTUS rule did not make such an effort but rather used a list of nine ecological functions and said that if any one of those functions could be demonstrated to occur with the wetland or in similarly situated wetlands within a watershed, then a significant nexus finding could be made. The functions listed included:

- Sediment trapping;
- Nutrient recycling;
- Pollutant trapping, transforming, and transport;
- Retention and attenuation of flood waters;
- Runoff storage;
- Contribution of flow;
- Export of organic matter;
- Export of food resources;
- Provision of life cycle dependent aquatic habitat (such as foraging, feeding, nesting, breeding, spawning, or use as a nursery area) for species

These functions are extremely broad, sometimes contradictory, and provide little room for any true evaluation of the particular nature of the wetland being evaluated nor the significance of that wetland on downstream TNWs. There was no guidance as to the specificity of the information

[11] Precon Development Corp, Inc v US Army Corps of Engineers. January 25, 2011.
[12] Simsbury-Avon Preservation v. Metacon Gun Club. US District Court, Connecticut. January 31, 2007.

required, how to quantify any of these variables, and what measures would be used to assess how they influenced downstream TNWs. The Panel was never asked to opine on these matters and the final Connectivity Report stated that no scientific consensus on such measures had been reached in the peer-reviewed literature[13].

Current extent of federal interpretation of significant nexus

When issuing the WOTUS rule, the agencies stated that because all tributaries are jurisdictional "by rule", "the vast majority of the nation's water features were located within 4,000 feet of a covered tributary, traditional navigable water, interstate water, or territorial sea." The Rule's significant nexus test would apply to these features, either alone or in combination with similarly situated "waters". Justice Kennedy's concurring opinion stated that wetlands adjacent to tributaries can "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." Justice Kennedy only discusses wetlands in the context of significant nexus; however, the WOTUS rule expanded this concept to cover streams and tributaries.

The draft Connectivity Report did not discuss the "similarly situated" concept nor was the Panel requested in any of the Charge Questions to evaluate how the existing scientific literature could inform this process. No specific recommendations were provided nor did the Final Connectivity Report contain any specific analysis of how to address Justice Kennedy's test. The Panel's comments on the draft Rule were also very cryptic and noted that there can be an effect on downstream waters when "waters" were considered in aggregate; however, no agreement was reached on how that aggregation should be done.

The WOTUS rule defined an extraordinarily large area to be considered as subject to aggregation—stating that it would include all wetlands and waters within a region that drains into the nearest navigable water, intrastate water, or territorial sea. In California, this would include extraordinary large areas encompassing large portions of a single state (e.g. waters draining into the Sacramento River) with variously different wetland types. There is considerable geologic, vegetative, and topographic variation in such large areas that it goes beyond what would be considered as being similar based on scientific principles. The areas subject to aggregation under the 2015 Rule would be far larger than under the 2007 EPA/Corps guidance which uses the immediate watershed surrounding the specific stream reach subject to a significant nexus analysis. Because the WOTUS rule was in effect for such a short period, no significant nexus determinations were made using this expanded standard.

[13] See Section 2.4.6 of the final Connectivity Report

Nevertheless, the Department of Justice, for the Environmental Protection Agency, has brought enforcement actions based on use of a broad concept of "similarly situated" that was adopted in the WOTUS rule. An example of this expanded view is *US* v *HVI Cat Canyon* in the US District Court (California)[14]. In this matter, the discharges occurred within ephemeral drainages that flow, on average, for only a few days/year following rain events and when they do flow, contribute less than 1% of the flows from the entire watershed to the TNW. The drainages are located over 25 miles from the TNW. Under the 2007 EPA/Corps guidance, the "relevant reach" for the evaluation of the significant nexus is only that portion associated with the first order stream and any wetlands associated with that reach. In the *Cat Canyon* case, the relevant reach and its watershed comprises less than 0.5% of the entire watershed of the Santa Maria River. However, the US is applying the standard of the now stayed WOTUS rule that would have allowed for a combination of all similarly situated waters in the entire Santa Maria watershed in order to make a determination of significant nexus. Under the 2015 Rule's standard, the US states that the true measure of significance should include 60% of the watershed when all first order streams and their watersheds are combined. The basis for their determination of significance is that, if all these streams were eliminated, there would certainly be a significant nexus on the TNW. No one is proposing such an outcome. The stark difference in how significant nexus is determined under the 2007 EPA/Corps guidance and the WOTUS rule brings to light the necessity of greater scrutiny on the agencies' significant nexus approach.

[14] US District Court, Central District of California. CV 11-05097 FMO (SSx)

Table 6-2. Relative abundance of literature by review topic area. The table shows the relative size of the body of literature documented in the report that addresses the physical, chemical, or biological connectivity to and effects on downstream waters. A small dot (·) indicates a relatively smaller body of literature, a medium dot (●) indicates a relatively intermediate body of literature, and a large dot (○) indicates a relatively large body of literature. The dot size does not necessarily correspond with the number of associated citations in this report because some citations are review articles or meta-analyses, which summarize information from many references. The dot size also does not correspond with level of confidence in particular conclusions.

Topic	Question		Biological		Chemical		Physical	
			Connection	Effect	Connection	Effect	Connection	Effect
Streams	What are the physical, chemical, and biological connections to and effects of ephemeral, intermittent, and perennial streams on downstream waters?	ephemeral	●	·	○	●	○	●
		intermittent	○	●	○	●	○	●
		perennial	○	○	○	○	○	○
Riparian/ Floodplain Wetlands	What are the physical, chemical, and biological connections to and effects of riparian or floodplain wetlands and open waters (e.g., riverine wetlands, oxbow lakes) on downstream waters?		○	○	○	○	○	○
Non-floodplain wetlands	What are the physical, chemical, and biological connections to and effects of wetlands and open waters in non-floodplain settings (e.g., most prairie potholes, vernal pools) on downstream waters?		●	·	●	·	·	·

From EPA 2015 Connectivity of Streams & Wetlands to Downstream Waters

STATEMENT OF JOHN PEABODY (MAJOR GENERAL, U.S. ARMY RETIRED) BEFORE THE SENATE COMMITTEE ON ENERGY AND PUBLIC WORKS REGARDING THE SCIENTIFIC, LEGAL AND TECHNICAL BASIS FOR THE WATERS OF THE UNITED STATES RULE-MAKING

Mr. Chairman and Mr. Ranking Member, thank you for the opportunity to testify on the recent rule-making effort regarding the Waters of the United States. It is always a privilege to appear before Congress and assist in advancing the public interest.

BACKGROUND

My name is John Peabody, and I am testifying today because of my personal knowledge of, and work with my former Corps of Engineers colleagues related to, the Waters of the United States (WOTUS) Rule-making undertaken by the Environmental Protection Agency (EPA) and the Office of the Assistant Secretary of the Army (OASA/CW, also "Army" or "Army Secretariat"). I was assigned to the U.S. Army Corps of Engineers (Corps) Headquarters as the Deputy Commanding General for Civil and Emergency Operations (DCG-CEO) from October of 2013 through August, 2015. In that position, I was responsible for directing the execution of the Corps Civil Works program, including the Corps' Regulatory program. I was also responsible for policy recommendations to the Assistant Secretary of the Army for Civil Works (ASA/CW) based on Corps expertise and experience, as well as coordination of policy issues with a broad array of partner federal agencies through a number of interagency mechanisms.

Although my testimony is based primarily on my knowledge and experience while serving as the DCG-CEO in the Corps, because I left that position and retired from active duty 20 months ago, I am testifying today as a private citizen who does not currently speak for the Army or the Corps of Engineers in any way. So, I find myself in the unusual position of testifying about an agency, its actions and its positions in which I was a senior leader and about which I have extensive knowledge, but for which I no longer represent.

My testimony reflects my best recollection of discussions with and advice from numerous senior Corps experts with whom I was privileged to associate during my tenure at the Corps headquarters, and the Corps' staff recommendations related to the Waters of the United States (WOTUS) Rule-making as I remember it at that time. My testimony is based on limited access to contemporary records (emails I sent or received), and information from on the record documents that have since become available in the public record, primarily from Congressional investigations and hearings. This testimony is intended to reflect what I knew at the time of the draft final rule-making, primarily from September 2013 through July of 2015, but includes background knowledge I had acquired throughout my tenure in various positions in the Corps of Engineers.

I spent the last ten of my 35 years in the Army assigned to the Corps. This included command of three divisions, in sequence the Pacific Ocean Division (2005-2008), Great Lakes and Ohio River Division (2008-2011), Mississippi Valley Division

and President of the Mississippi River Commission (2011-2013), then finally as the Deputy Commanding General for Civil and Emergency Operations (2013-2015). During those ten years I was involved with a number of high profile programs, projects, disaster response efforts, environmental challenges and regulatory issues, during which I acquired a deep respect for the vast responsibilities of the Corps, especially regarding the Corps' history of delivering water resource solutions to the nation's most challenging problems.

US ARMY CORPS OF ENGINEERS CONTEXT

The US. Army Corps of Engineers is the largest and most sophisticated public engineering agency in the world. The opinions and expertise of its amazingly talented experts, are sought throughout the world, and its techniques are modeled globally. From the early 1800's through to the present day, this nation has continuously turned to and relied upon the Army Corps of Engineers to solve its water resource development and management challenges. These include to clear, snag and improve river channels with structures like locks and dams to enable navigation; reduce flood risks with levees, river matting and channel structures, as well as hundreds of flood risk reduction dams; establish, deepen and maintain coastal and inland ports; manage coastal erosion; conduct cutting edge research and design to develop engineering approaches for myriad challenges, from taming the Mississippi River to preventing Asian carp from invading the Great Lakes; and developing policies and expertise to administer Section 10 permits under the 1899 Rivers and Harbors Act, and later Section 404 of the 1972 Clean Water Act, to permit construction and other activities involving work in Waters of the United States.

During my time in the Corps, I gained a keen appreciation for the decisive importance of water resource infrastructure to America's economic vitality, international competitiveness, and environmental health. In the nineteenth and early twentieth centuries, our nation required a robust infrastructure to enable commerce and blunt the devastating ravages of nature's force, especially from floods. The infrastructure dreamed of to manifest the positivist vision of taming nature was largely constructed in the middle portion of the 20th century. Now that much of it is complete – having accrued massive but essentially unappreciated benefits which are rarely understood by the public because cheap and reliable transportation is enabled, and flood catastrophes prevented – this infrastructure's incredible benefits are mostly taken for granted except by those pockets of communities and stakeholders that lack and therefore clearly understand the need for such projects.

While the Corps is the subject of both high praise and periodic condemnation, my experience with the vast majority of Corps professionals is that they are exceptionally hard working, selflessly committed, and professionally apolitical. One of the attributes I most admire about the Corps is this apolitical professionalism. The Corps will always implement laws, regulations, and policy decisions to the best of its ability in an objective manner. But before a decision is made, Corps leaders feel duty bound to ensure that policy makers benefit from a clear and complete understanding of the implications and outcomes prospective policy decisions will cause. As the nation's premier engineering organization, the Corps works hard to ensure it clearly communicates its best expertise

and judgment, so that policy makers fully understand potential impacts, and that the final decision will be factually and scientifically based, legally viable, and can be implemented consistently and effectively across the nation.

As our nation developed and steadily advanced in making modern life less dangerous, more reliable, and more convenient, the laws, policies and regulations which have enabled federal activities to advance these purposes have also developed. Increasingly complex laws, regulations and policies have become confusing and challenging to navigate by the average citizen. Modern American laws and regulations are navigated most effectively by professional civil servants, or professional advocates and trade associations.

A key aspect of this more complex legal and bureaucratic development arose from the environmental laws passed to correct the disregard, neglect and even abuse of the environment all too common until the late 20th Century. With this change the Corps added environmental missions to its portfolio of major purposes. In its civil works and regulatory programs, the Corps operates at the juncture of water, the natural environment, and land, both public and private, much of which is developed. This reality often brings into focus conflicting viewpoints between the public and disparate federal agencies over the proper application of federal statutes, regulations and policies. Part of this juncture includes the complex array of laws, regulations and policies implemented by several different federal and state agencies.

CORPS REGULATORY PROGRAM AND THE MODERN BUREAUCRATIC STATE

The public most frequently interacts with the Corps through its recreation program (an outgrowth from the lakes impounded behind Corps dams) and to obtain a regulatory permit. The more than 1200 Corps' regulators process well over 99% of all Section 404 Clean Water Actions actions in this country, consisting of tens of thousands of regulatory actions each year. This makes the Corps' regulatory staff and legal professionals supporting them uniquely positioned as the nation's premier experts on the application and nuances of Section 404 of the Clean Water Act within varying conditions across the country.

The Corps' permitting rules and process are extremely complex, and can cause great frustration for those unacquainted with the nuances of the requirements. This frustration can translate into a general mischaracterization of Corps permits as burdensome, cumbersome, and unnecessarily bureaucratic. While this characterization is the case in some instances, and some permit requests have lingered for many years due to exceptional circumstances, Corps data proves that this is the exception. In reality over 85% of all applications are processed within 60 days from receipt of a final policy-compliant application to a decision.

According to the Corps' Fiscal Year 2016 data, approximately 79,000 permitting actions were processed, of which only 87 were denied. Most of these permitting actions were covered under the general permit program, which enables streamlined decisions for the majority of applicants, whose requests meets certain common parameters for frequently applied purposes. Of particular note, nearly 7,000 requests resulted in a determination that no permit was required. On top of these permitting actions, the

Corps also processed about 4,000 jurisdictional determinations. Corps regulators work very hard with permit applicants to achieve the applicant's objective while avoiding and minimizing impacts to regulated water bodies, then identifying mitigation solutions to unavoidable impacts. The regulatory professionals' goal is to find a solution to every applicant's request in a way that corresponds to law, regulation, and policy.

Environmental health and the biodiversity our nation treasures depend on clean and healthy waterways, especially wetlands. Because human development naturally occurs near and along water bodies, which it is the duty of the Corps to regulate through its Section 10 and 404 permitting programs, the Corps is at the intersection of human and environmental needs, corresponding also with the intersection of multiple competing interests, and the divergent views of various federal, state and local agencies. I have tremendous respect for the amazingly talented and incredibly dedicated professionals of the Corps who expertly navigate the wide array of laws, policies and regulations that both enable and constrain their work, yet somehow manage to deliver positive results despite innumerable funding and policy challenges, and frequent interagency disagreements which often significantly lengthen decision-making.

To this complex mix of laws, regulations, policies, and agencies with different authorities and disparate purposes and views, is added a Clean Water Act whose most basic definition – "Waters of the United States" – regarding what constitutes the jurisdictional scope of the Act, has been the subject of decades of intense disagreement. This disagreement has manifested in legal disputes, dozens of landmark judicial decisions making a rich body of case law, and a pivotal Supreme Court case where the justices themselves could not arrive at a majority opinion on how to define, or clearly and unambiguously assess, what constitutes jurisdictional waters of the United States. On top of this, scientific understanding related to natural water bodies has also developed and advanced, and the result is a Clean Water Act history characterized by a dynamically changing legal and policy environment whose only constant is conflict and uncertainty. It is little wonder, then, that the agencies charged with implementing this law have been challenged to do so in a way that is broadly accepted by the public, and are sometimes accused with inconsistent application of the law.

The energy and fervor a wide variety of interests have expressed both for and against the WOTUS rule, speaks volumes about the challenges of applying Section 404 of the Clean Water Act. The inherent complexity of waterways in the natural and human-altered environment has generated an entire industry of experts who study and publish technical and legal papers, and others who alternately advocate for expanding or limiting the jurisdictional reach of Section 404. The passionately held disagreements on this issue play out most often through interactions with Corps regulators across the country, who stoically engage and absorb the regulated public's frustrations, from both sides of this debate.

Caught in the middle of this debate, what the Corps needs more than anything is clear and objective policy direction that is well founded on facts, science, and clearly articulated laws, regulations and policies. For it is almost exclusively the Corps which

must explain and support the rule to a generally skeptical (and sometimes hostile) public. It is Corps regulators who must assess permit applications and make regulatory decisions, and whose decisions will be legally challenged in the courts.

No agency is more motivated to have a WOTUS rule update that is soundly based on the most current science and the proper application of technical and economic data. The Corps and public would both benefit from a WOTUS rule that is as easy as possible to explain and to apply to widely divergent realities across the nation, given the complexity of water bodies in the natural environment, and numerous relevant statutes and case law. These qualities in a rule would enable responsible and responsive Corps regulatory decisions for applicants.

WOTUS RULE BACKGROUND

Although I was well aware of the *SWANCC* and *Rapanos* decisions and subsequent policy guidance as a division commander in the Corps from 2005 through 2013, my personal involvement with the Waters of the United States rule-making began when I arrived at the Corps Headquarters in October of 2013, just after the draft rule was promulgated for public review in September 2013. This was near the end of a long process that began with the Supreme Court's *SWANCC* and *Rapanos* decisions in 2001 and 2006, continued through the 2008 joint EPA-Army *Rapanos* Guidance, followed by the 2011 draft *Rapanos* Updated Guidance, which later evolved into the 2013 draft rule. My direct knowledge of the rule-making process is limited to the rule-making for the final draft rule from 2013 through 2015, with most of my personal involvement occurring from the fall of 2014 through to the end of my tenure in August of 2015.

After I arrived at the Corps headquarters, I asked Corps senior staff to brief me on a wide array of national policy issues, including the WOTUS Rule-making, to sharpen my understanding of key issues, and optimize my effectiveness in executing my duties. To ensure I understood the context for the rule-making as completely as possible, I engaged Corps leaders, legal and regulatory staff, on a periodic basis to brief me on the background that led to the on-going rule-making, especially various aspects of the 2013 proposed rule, including the Connectivity Report, as well as Corps staff involvement with Army, EPA, OMB, and CEQ staff. By understanding the context of the rule-making, I intended to be position myself to guide and support Corps staff as this process progressed, and to engage and advise the Chief of Engineers, the Assistant Secretary of the Army for Civil Works, and other members of the interagency team, on the rule-making.

WOTUS FINAL DRAFT RULE MAKING PROCESS

According to the Corps senior staff with whom I discussed this issue, prior to the draft final rule effort which began in late September 2014, senior Corps staff, principally regulatory and legal staff, had been substantively involved in drafting the rule with EPA colleagues throughout the post-*Rapanos* decision period. In mid-September of 2014, the ASA/CW informed me at one of our weekly meetings that the Administration intended to finalize the CWA WOTUS Rule quickly, with a goal of early January 2015. To that end, a small group called the "Interagency Strategic Team" (IST) consisting of

eight or nine people from EPA, the Army Secretariat staff, and including two or three leaders from the Corps of Engineers, would meet frequently – at least weekly or more often – to establish principles and framework for finalizing the rule, and to craft the final draft rule language based on guidance from policy makers, especially EPA Administrator McCarthy, since EPA was the lead agency for the rule-making. The ASA/CW, Ms. Darcy, said that her representative at these meetings would be the Army General Counsel (AGC) representative, Mr. Schmauder, and that the Corps was to work with him or her on all concerns. This was in line with previous guidance form the ASA/CW that all communication on this matter was to be coordinated through her office. At that time the major issues I was aware of that needed to be worked included addressing and incorporating public comments, addressing updates to the draft Connectivity report, and applying rule language changes based on policy guidance from the Administration.

Senior Corps staff were concerned with the ability to develop a quality report in the short time specified given the record number of public comments approaching one million (of which approximately 20,000 were ultimately characterized as unique), the reality that the Connectivity report was still undergoing Science Advisory Board review, and the fact that the Corps had no visibility on the status of the Economic Analysis or Technical Support documents which would be required to support the rule. To meet this aggressive schedule, the Corps brought in to the headquarters several regulatory experts from the field to review and assess the public comments.

Beginning in November 2014, the Corps was marginalized from substantive participation in the rule-making process. In general, Corps involvement was limited to providing analysis of various proposed changes or alterations to the final draft rule that was under consideration. Specifically, in late November or early December 2014 Corps staff made me aware that we were no longer being invited to the rule-making meetings, and therefore our involvement in developing the rule language had ceased. When I advised Ms. Darcy that Corps personnel were no longer being invited to rule meetings that were still being held, she re-confirmed that this was contrary to her specific direction, and she emphasized that she wanted Corps experts at the meetings. Although I assumed this would resolve the issue, notwithstanding her direction nothing changed. I brought this up two or three more times in early 2015, but with no effect.

My review of the limited contemporary record that I was able to access, reinforces my memory about the marginal and insubstantial Corps involvement with the final rule-making process. The Corps attended a few IST meetings with EPA and Army Secretariat staff in late September to early November 2014, but Corps experts were excluded from routine meetings after November 6th, 2014, with the exception of one conference call on January 7, 2015. After November, most of our information related to the rule-making came from periodic, often imprecise, but nearly always narrowly specific snippets of information from Mr. Schmauder, the AGC representative, almost exclusively passed via phone discussions held with the Corps Chief Counsel. I was told in late 2014 that Mr. Schmauder said he was working options directly with EPA Water staff, but we were generally unaware of the substance of those discussions. The Corps was provided periodic updates of the draft rule text on two or three occasions, and at least once was provided the preamble for review and comment.

Periodically Mr. Schmauder would convey narrowly specific decisions, or ask for feedback on discrete and narrow proposed language, which was usually difficult to assess out of context with the status of the entire rule's language at any stage of the drafting process. On occasion the Corps would be sent information for review and comment, or in a few instances a third party provided updates, from which we would discover some change in the draft final rule that we assessed to be factually, technically, or legally challenging. Whenever that occurred, Corps staff raised their concerns with Mr. Schmauder. For example, in at least one instance the Corps headquarters received information on the draft final rule from Corps districts, who had been engaged by their EPA Field counterparts. EPA staff in the field had received the draft from EPA Headquarters for their review and comment, and had shared that draft with their Corps district counterparts in the field. Regardless of how information was conveyed, the Corps' concerns with the factual, scientific, and legal basis for the rule text went unaddressed.

In particular, the Corps was excluded from several interagency meetings from December 2014 through April 2015 involving Army, CEQ, EPA and OMB senior staff, which we discovered through various indirect means after the fact. I can recall only three meetings with the ASA/CW related to the rule between November 2014 and June 2015. In late November 2014 Corps staff briefed her on Corps legal and technical concerns with the draft rule at that time, in preparation for a meeting she was having with the EPA Administrator. In the March 2015 time frame, Corps staff and leaders briefed the ASA/CW regarding concerns with the draft final rule, especially the impact to jurisdiction that the 4,000 foot "bright line" jurisdictional limit would have. The last meeting occurred in June after the rule had been posted to the federal register, and was requested by the Chief of Engineers to gather senior Army Secretariat and Corps staff to discuss the concerns I had expressed in the memoranda I had sent to the ASA/CW.

The Corps did get updates to the draft final rule text twice that I can discern from my review of the record, once in late January 2015 when EPA staff passed along an updated copy directly to the Corps Regulatory Chief, and once in early March 2015 from the AGC. The first time that the Corps was provided a copy of the revised preamble was in early March, 2015. The next time we saw the final draft preamble was after it was sent to OMB in early April 2015, which contained some statements we had not previously seen that were factually inaccurate, especially regarding the Corps. At the very end of the process, a week before the rule was submitted to OMB, the EPA Wetlands Chief met with the Corps Regulatory Chief to discuss Corps concerns with the 4,000 "bright line", but nothing changed.

What was of greatest concern to me personally, and to the Corps senior leaders and staff with whom I discussed this issue at that time, was not that the Corps was excluded from most of the process of developing the rule. The more concerning issue was that the marginalization of the Corps had caused Corps expertise, concerns and related recommendations – founded on serious and significant concerns with the viability of the rule from a factual, scientific, technical and legal basis – to be so completely disregarded. Whenever we received periodic access to see updated versions of the draft final rule text or preamble, the serious concerns the Corps had repeatedly communicated were left largely unaddressed. Most importantly from an

outcome perspective, Corps concerns and recommendations remained unaddressed in the rule or preamble language throughout the process.

JOINT RULE-MAKING

Based on my review of the record and my recollections of what transpired, I did not then and do not now consider the Corps to have been a substantive contributor to the final rule, beginning in the fall of 2014. Starting in November of 2104 the Corps did not regularly or substantially participate in draft rule changes as they were occurring. The preamble to the final rule states that the rulemaking was a joint endeavor of the EPA and the Corps, that both agencies jointly reached significant findings, and that the agencies came to important conclusions based on their experience and expertise. These statements and characterizations are untrue. Several important aspects of the final rule do not reflect the technical and legal analyses provided by the Corps to the drafters of the final rule, which was intended to ensure that the rule would be both legally and technically supportable.

The Corps was not involved in analyzing the data it shared with EPA, which was then misapplied in the Economic Analysis and the Technical Support Document to develop conclusions which are unsupportable by the underlying data. In fact, the Corps was not consulted regarding, and had no role in the drafting of those two documents. Additionally, many of the statements in the rule preamble that attempt to explain the rule's rationale indicate that decisions in the rule-making relied explicitly on "Corps experience and expertise." This is misleading because Corps experience and expertise was either not accepted in the rule-making, or information from the Corps was used by EPA without consulting the Corps on its proper application, resulting in its use out of context. The Corps had no involvement in the actual analysis or documentation.

For these reasons I do not consider the final WOTUS rule-making effort to have involved the Corps as a joint rule-making partner. Rather, all of the evidence with which I was then aware, and which I recently reviewed in preparation for this testimony, led me then and now to conclude that this was a joint rule-making between EPA and the Army Secretariat, but not the Corps. In fact, the record shows that the Corps was marginalized from the final draft rule-making process from November of 2014 through to its publication in the federal register.

Starting in November of 2014, in general the Corps' involvement in the rule-making was marginal, episodic, and limited to a few discrete engagements primarily regarding specific rule language over which the Corps expressed concern. The Corps was excluded from the IST meetings and other routine discussions, had little direct engagement with EPA counterparts, and was able to engage only on a periodic and significantly constrained basis with those involved in developing the final draft rule language. On those occasions when the Corps was engaged, or when the Corps advanced concerns, its recommendations were either not accepted, or resulted in changes which were unresponsive to the basic concerns. However, because the Corps was not involved in routine or substantive discussions, it is difficult to assess to what extent various changes EPA made in the draft final rule were intended to be responsive to Corps concerns, or were made based on other factors. Most of the Corps' concerns

were expressed either to Mr. Schmauder of the Army Secretariat staff involved in the rule-making, or to the ASA/CW herself.

DRAFT FINAL WOTUS RULE INTERAGENCY REVIEW

On or about 6 April 2015, the Corps was provided a copy of the draft final rule and preamble that had just been submitted to OMB for final interagency review. After quickly reviewing the documents, Corps staff discovered several issues of serious concern with the rule, including a number of inaccurate characterizations about the Corps' involvement in developing the rule. Based on lengthy internal Corps discussions and the adamant concerns conveyed by Corps staff, I concluded that the basis for the rule as documented in the preamble and other supporting documents, was insufficient scientifically, technically and legally to justify the rule text that had been submitted to OMB. In short, it was the unanimous conclusion of Corps staff, which I fully supported, that the rule as written was fatally flawed.

Because of EPA and Army Secretariat staff's unresponsiveness to Corps staff recommendations regarding the rule, I had an additional concern that I as a leader had failed to ensure the Corps had expressed our concerns with sufficient clarity to the senior Army policy maker, the ASA/CW. This had been hard to do because we had been excluded from the EPA-Army Secretariat discussions that had resulted in various final draft rule and preamble text changes, were not invited to or involved in key meetings, and had no visibility on the economic analysis or technical support documents until they were published at OMB. Notwithstanding these constraints, I felt a professional obligation to ensure that policy makers received the benefit of the Corps' technical expertise, especially our experts' clear and unambiguous recommendations, before policy makers finalized a decision which we believed to be so fundamentally untenable.

I therefore began to consider the potential need to document Corps concerns in writing so that we could be confident that we had communicated our concerns and recommendations "in a manner that is impossible to misunderstand," as the then Chief of Engineers, Lieutenant General Bostick, would often say. With this possible need in mind, I directed Corps regulatory and legal staff to conduct a detailed review of the preamble and rule, and to document their most serious concerns in separate legal and regulatory memoranda for my review. Given the Administration's desire to complete the rule quickly, I asked for their analysis as soon as possible.

Upon reviewing the legal and regulatory concerns prepared at my request about two weeks later, and after carefully questioning the Corps' staffs' conclusions, I consulted with the Corps Chief Counsel, Director of Civil Works, and Operations Chief, after which my confidence was strengthened in my prior conclusion that the rule and preamble, as written, were fatally flawed. I determined that my professional responsibility to the ASA/CW required me to ensure that she clearly understood the Corps' positions and serious concerns. I discussed this approach with the Chief of Engineers before I finalized my decision and conveyed the Corps analysis and concerns to the ASA/CW in writing.

The Corps concerns are summarized in two memoranda that I wrote, with which I forwarded more detailed documented concerns by the Corps Legal expert, Mr. Wood, and Regulatory Chief, Ms. Moyer. Although these documents were intended for internal Administration consumption, most of them have since become part of the public record, and are contained on this committee's web site at https://www.epw.senate.gov/public/_cache/files/94d5f9d0-2a56-47ee-aa44-4dcf7c9f6a94/07.17.15-army-corps-darcy-with-7-attachments-responses-to-07.16.15.pdf.

KEY CORPS RULE CONCERNS

Fundamentally, the key concerns with the final draft rule published for interagency review in early April 2015, emanated from IST discussions in the fall of 2014 in which the Corps initially participated. Corps staff proposed a variety of options to address policy desires in ways that would be scientifically founded, technically accurate, and legally defensible. Although the Corps' proposed options were never applied, the key issues at that time included the following:

(1) Tributary. A changed definition of "tributary" which would exclude from jurisdiction headwaters currently jurisdictional waters contributing flows to tributaries, such as lakes, ponds and wetlands which contributed flow to a tributary. The Corps believed this change to be without scientific foundation, and therefore Corps legal staff advised me this was susceptible to legal challenge as arbitrary and capricious;

(2) Adjacency. The definition of the terms "adjacent", "neighboring" and other similar terms had generated substantial public feedback;

(3) "Other Waters". EPA staff had discussed the desire to incorporate truly isolated water bodies, such as prairie potholes, vernal pools, playa lakes, and so forth, as jurisdictional. Corps staff believed establishing the jurisdiction over such water bodies required identifying a scientific basis for a connection to traditionally jurisdictional waters, by applying the Kennedy "significant nexus" standard from the Rapanos decision.

(4) Definition of "Waters". The rule would be strengthened by adding a definition for three terms ("water", "waters", and "water body") used synonymously in the 2013 proposed rule

(5) Ditches. Options were discussed regarding ditches, which were initially unclear as to the policy desire in the fall of 2014.

The Corps concerns identified in the fall of 2014 only intensified as the rule-making process progressed. After the final draft rule was provided to OMB for interagency review in early April 2015, as discussed above, Corps regulatory and legal staff analyzed the rule, preamble, and supporting documents as quickly as possible. The volume of information requiring review was challenging, amounted to several hundred pages of highly technical documentation, and only days in which to review the material. As such I asked Corps staff to focus only on issues which they identified as potential "fatal flaws", or issues which by themselves would cause key aspects of the rule, or perhaps the entirety of the rule, to be technically unimplementable,

environmentally unacceptable, legally unsupportable, or an unwarranted assertion of jurisdiction.

That analysis resulted in a series of memoranda from Corps staff to me summarizing their most significant concerns. Their memoranda (written in late April to mid May 2015) outlining their concerns, and in some cases advancing recommendations to address them, can be found at the committee web site referenced at page 10 above. I forwarded their memoranda with some supporting documentation, in two separate packets with cover memoranda from me to summarize their contents.

The total documentation provided to the ASA/CW includes several dozen pages, but the most critical concerns of the Corps regarding the draft final rule and associated supporting documents, includes the following issues:

(1) The 4,000 feet jurisdictional limit has no scientific basis, no administrative record supporting it, is arbitrary and capricious, and would result in the loss of potentially significant aquatic resources currently jurisdictional and therefore required an Environmental Impact Statement (EIS);

(2) Isolated Water Bodies should require a case specific significant nexus determination if a policy decision is made to pursue them as jurisdictional;

(3) Changed Definition of Adjacency excludes from jurisdiction by rule large areas of wetlands used or formerly used for farming, forestry, and ranching – this is unsupportable under the Kennedy significant nexus test, as there was no public comment, as well as likely requiring an EIS;

(4) Neighboring - All water bodies within 1500 feet of an ordinary high water mark or high tide line would be jurisdictional by rule, although the Connectivity Report indicates that 300 feet would be the scientifically supportable distance;

(5) Changed definition of Tributary would exclude certain lakes, ponds and wetlands that were previously included under the prior rule and the 2008 *Rapanos* Joint Guidance;

(6) Altered Jurisdictional Scope could occur without the benefit of national detailed analysis that an EIS would enable;

(7) EPA Analysis Flawed – By using Corps data without the involvement of Corps personnel, EPA misapplied Corps data to draw unsupportable conclusions. In general, EPA took specific data sets and applied them more broadly than the data could justify; made assumptions without an analytical basis,; overestimated compensatory mitigation required under Section 404; failed to address potential decreases in jurisdiction; incorrectly concluded the rule has no tribal implications; among many other errors in both the Economic Analysis and the Technical Support Document.

SUMMARY

In summary, at the time the final draft rule and preamble were provided for interagency review and subsequently finalized, the Corps did not believe that either of these documents were viable from a factual, scientific, analytical, or legal basis. It was also the Corps judgment that it would be incredibly difficult for Corps leaders, regulatory and legal staff to advance and defend this rule with the regulated public, and that its technical implementation would be exceptionally challenging.

The memoranda forwarded to the ASA/CW along with the memoranda prepared by Corps legal and regulatory staff for my review, were intended to fulfill my duty to provide the best possible professional advice and judgment on this matter. Although the Corps is the agency with the most in depth expertise on the field application and legal defense of the Section 404 program, it was marginalized from the rule-making process, and its recommendations ignored or not accepted. Further, it was the Corps' judgment that key policy decisions, most particularly the 4,000 feet jurisdictional limit, but also decisions related to isolated water bodies, were not founded on scientific analysis contained in the Connectivity report or elsewhere in the scientific literature, and therefore would be susceptible to legal attack as arbitrary and capricious. That the rule was published without accounting for the key concerns and recommendations of the Corps was less concerning to me than the fact that the final documentation misrepresented Corps data and falsely characterized and portrayed the Corps' involvement and position. The Technical Support Document misapplied specific Corps technical data out of context to generalize broad national conclusions unsupportable by the underlying data, the 4,000 feet jurisdictional limit was based on no scientific or legal foundation of which the Corps was aware, and the rule-making process did not include the Corps as a joint member.

Notwithstanding Corps disagreement with the content of the final rule, throughout the WOTUS rulemaking process I, and I believe all Corps staff, fully understood and supported the Assistant Secretary's decision making authority in seeing the process to fruition. We fully appreciated the importance of this rulemaking to the Administration, and supported the need for this rule, which I believe all Corps professionals involved felt was a rule that is long overdue and needed. The Corps expended great effort in providing its technical and legal expertise, and decades of experience in implementing Section 404 of the Clean Water Act, to ensure that the final rule rested on sound technical and legal foundations. However, despite our best efforts, the final rule contained inaccuracies and misrepresentations which caused me grave concern, and which I felt compelled me to convey clearly and unambiguously to the ASA/CW.

CONCLUSION

In the staunchly apolitical civil-military tradition of this country, I take no personal position on what specific outcome or form a WOTUS rule should take. But based on my experience with the rule-making that occurred while I served in the Corps of Engineers, it was then and is now my firm belief that an updated rule is needed to address the major changes affecting the basis for a WOTUS rule since the 1986 rule was

promulgated. In the over thirty years since that time, significant case law (most notably *SWANCC* and *Rapanos*) has changed the way the federal government regulates waters of the United States. In addition, significant advancements in scientific understanding of the functionality of water bodies and wetlands, and their impacts on both the natural and human-made environment have also transpired, and continue to develop. Similarly, Corps regulators and EPA experts have developed a vast body of experience in applying all aspects of the Clean Water Act.

Given the energy and interests that feel threatened by a potential WOTUS rule change, it might be easy to conclude that no rule satisfactory to all, or at least most, sides of this debate can be developed. Whether or not that is the case is a matter for politicians such as yourselves to determine. But as a former Army Corps of Engineers official, I was charged with serving the citizens of this country who are affected by federal regulations such as this rule; with leading the professionals whose careers are deeply affected by how this issue is decided; with supporting the environmental responsibilities of the position that I held; and with following through on my professional duty to advise policy makers on the viability and consequences of their decisions. For all of these reasons it remains my fervent hope that our political leaders, such as yourselves, can find a way to bridge political differences and address valid concerns from advocates on all sides of this issue, then help develop a rule that is objectively based and acceptable to most constituents.

The key characteristics of a WOTUS rule for which I advocated in uniform are that it be factually and scientifically based; technically supportable by data and objective analysis; based on the experience and expertise of both federal experts who implement it and the regulated public and stakeholders who must abide by it; and that it be legally supportable and defensible. As a private citizen, I would add to this list that it also should be comprehensible by those among the regulated public who are willing to dedicate reasonable time to understand the complexities of the rule's application.

I am only too aware that concluding with a plea such as this likely will sound naive and unrealistic to most readers familiar with this issue and with our national political environment. Nonetheless it remains my sincere hope that this nation's political leaders, such as this committee, can dedicate yourselves to lead our country to a bipartisan solution on this issue, which you have taken so much time to deliberate over for many years, and now once more in this hearing today.

Thank you for your time and for the honor of being asked to testify. It is my sincere hope that my testimony will provide value for the Committee's deliberations.

ORIGINAL SIGNED

John W. Peabody

Major General, U.S. Army (Retired)

Misha Tseytlin
Solicitor General of Wisconsin
Testimony before the
Senate Committee on Environment and Public Works
April 26, 2017

Chairman Barrasso, Ranking Member Carper, and Members of this Committee, I am grateful for the opportunity to appear before you today. My name is Misha Tseytlin and I proudly serve as Solicitor General for the State of Wisconsin. My State—led by Attorney General Brad D. Schimel—has played an important role in the multistate coalition litigating against the illegal WOTUS Rule, 80 Fed. Reg. 37,054 (June 29, 2015). Our 30-state coalition is broad and geographically diverse, comprising States from Wyoming to West Virginia; from Ohio to Oklahoma; from Alabama to Alaska; from Georgia to New Mexico.

The reason for the breadth of this coalition—to my knowledge the largest such coalition of States challenging any regulation issued by the prior Administration—is that the WOTUS Rule is a deeply intrusive assault upon traditional state authority. Under both the United States Constitution and the Clean Water Act, States have the lead role in regulating most waters and lands within their borders. The Clean Water Act states this explicitly, explaining that "[i]t is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States . . . to plan the development and use . . . of land and water resources." 33 U.S.C. § 1251(b). The Federal Government, in contrast, has only limited authority to protect the Nation's "navigable waters," defined as the "waters of the United States." 33 U.S.C. §§ 1362(7), 1362(12). The WOTUS Rule is a breathtaking assertion of federal

regulatory authority over local waters, which are rightfully subject to state, not federal, regulation. The Rule claims federal power over stream beds that are dry most of the year, water features connected to navigable waters only once every 100 years, and much more. Simply put, the Rule is overbroad and unlawful. This Rule was adopted without meaningfully consulting the States about their own water-protective programs. Such consultation would have revealed that States already protect these features, making federal intrusion entirely unnecessary.

Given the illegality of the WOTUS Rule, it is unsurprising how poorly it has fared in court. On October 9, 2015, our broad coalition of States secured a nationwide stay of the WOTUS Rule from the United States Court of Appeals for the Sixth Circuit. As the Sixth Circuit explained, the States demonstrated that they have a "substantial possibility of success on the merits" in their arguments that the WOTUS Rule violates the Clean Water Act and the Administrative Procedure Act ("APA"). *See In re EPA*, 803 F.3d 804, 807 (6th Cir. 2015). The United States District Court for the District of North Dakota reached the same conclusion and thus issued a preliminary injunction blocking the WOTUS Rule. *See North Dakota v. EPA*, 127 F. Supp. 3d 1047 (D.N.D. 2015). Our coalition was extremely pleased that the new Administration heeded the message of the federal courts and has moved forward with rescinding the WOTUS Rule. *See* 82 Fed. Reg. 12,532 (Mar. 6, 2017).

The work that this Committee is doing here today provides an extremely valuable public service. Given the current Administration's laudable and swift movement toward repealing the WOTUS Rule, the federal courts are unlikely to have

an opportunity to declare finally what the Sixth Circuit and the District of North Dakota concluded preliminarily: the Rule is unlawful. This hearing is therefore vital to establish for the public what the States were already well on their way to proving in court. My testimony today provides only a high-level overview of the Rule's illegality under the APA and the Clean Water Act. For a more complete discussion of the Rule's legal shortfalls—including its constitutional infirmities—please see Attachment 1 to this testimony, which is the State Petitioners' comprehensive opening brief before the Sixth Circuit.

OVERVIEW OF THE WOTUS RULE

Under the Clean Water Act, "[i]t is the policy of the Congress to recognize, preserve, and protect the primary responsibilities and rights of States . . . to plan the development and use . . . of land and water resources." 33 U.S.C. § 1251(b). Federal authority under the Act is therefore limited to "navigable waters," *id.* § 1362(12), defined as "waters of the United States, including the territorial seas," *id.* § 1362(7). Inclusion of a water within federal jurisdiction has significant consequences for farmers, landowners, and small businesses because of, among other things, the imposition of substantial permitting requirements under the Section 402 National Pollutant Discharge Elimination System ("NPDES") program, *id.* § 1342, and under Section 404 for the discharge of dredged or fill material, *id.* § 1344. The Supreme Court has twice invalidated regulatory efforts to unduly expand the jurisdictional reach of the Clean Water Act under a definition of the "waters of the United States." *See Solid Waste Agency of N. Cook Cnty. v. U.S. Army Corps of Eng'rs*, 531 U.S. 159 (2001) ("*SWANCC*"); *Rapanos v. United States*, 547 U.S. 715 (2006).

The WOTUS Rule, issued by the Environmental Protection Agency ("EPA") and the United States Army Corps of Engineers ("Corps"), is yet another federal effort to expand the scope of the Clean Water Act's jurisdiction beyond what Congress authorized. The Rule starts with primary waters, which it defines as waters "currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide," as well as "all interstate waters, including interstate wetlands" and "territorial seas." 33 C.F.R. § 328.3(a)(1)–(3).[1]

The Rule then claims *per se* federal jurisdiction over an extremely broad swath of local waters and sometimes moist lands. The Rule declares that all "tributaries," 33 C.F.R. § 328.3(a)(5), of primary waters are always within federal jurisdiction. The Rule defines a "tributar[y]" as any "water that contributes flow, either directly or through another water," to a primary water and that is "characterized by the presence of the physical indicators of a bed and bank and an ordinary high water mark." *Id.* § 328.3(c)(3). This covers even dry channels that provide "intermittent or ephemeral" flow through "any number" of links. 80 Fed. Reg. at 37,076. The Rule also asserts *per se* jurisdiction over all non-farmland waters "adjacent" to primary waters and their tributaries, 33 C.F.R. §§ 328.3(a)(6), (c)(1), including all waters "bordering, contiguous, or neighboring" primary waters, impoundments, or tributaries, *see id.* § 328.3(c)(1). The Rule defines "neighboring" as (1) "all waters" any part of which are

[1] The Rule's definition of "waters of the United States" is located in multiple parts of the Code of Federal Regulations. In my testimony, I cite to 33 C.F.R. Part 328.

within 100 feet of the ordinary high water mark of a primary water or "tributary"; (2) "all waters" any part of which are within 1,500 feet of the ordinary high water mark of a primary water or "tributary" and within its 100-year floodplain; and (3) all waters any part of which are within 1,500 feet of the high-tide line of a primary water. *Id.* § 328.3(c)(2). So, for example, the Rule sweeps in any local waters connected to navigable waters only after a once-in-a-century rainstorm.

Finally, the Rule permits even further assertions of federal jurisdiction on a case-by-case basis. Waters eligible on a case-by-case basis include "waters [at least partially] located within the 100-year floodplain" of a primary water and "waters [at least partially] located within 4,000 feet of the high tide line or ordinary high water mark" of a primary water, impoundment, or tributary. *Id.* § 328.3(a)(8). Case-by-case waters are included within federal authority if such waters, "either alone or in combination with other similarly situated waters in the region, significantly affect[ ] the chemical, physical, *or* biological integrity of a [primary water]" based on "any single function or combination of functions performed by the water." *Id.* § 328.3(c)(5) (emphasis added). Under this vague multifactor approach to case-by-case waters, there is very little local water in this country that States, farmers, homeowners, and small businesses can be sure is safe from federal intrusion.

THE WOTUS RULE IS ILLEGAL IN NUMEROUS RESPECTS

I. The WOTUS Rule Violates The Administrative Procedure Act

The APA is this country's charter for agency rulemaking, providing both mandatory procedures for creating rules and substantive provisions for adjudicating

rules' legality. The APA's substantive and procedural components are inextricably linked. Under the APA's substantive requirements, a rule is unlawful if it is not supported by the administrative record. *See Motor Vehicle Mfrs. Ass'n of United States, Inc. v. State Farm Mut. Ins. Co.*, 463 U.S. 29, 41–42 (1983). Under the APA's procedural components, an agency must build that record by submitting the rule to notice and comment so that the public can provide its input and evidence. *See* 5 U.S.C. § 553(b). A critical aspect of this rulemaking process is that the agency may not adopt a final rule that is not a "logical outgrowth" of the proposed rule. *See Long Island Care at Home, Ltd. v. Coke*, 551 U.S. 158, 174 (2007). The rationale for this is that if the final rule is too different from the proposed rule, the final rule would not have been subjected to the mandatory rigors of public notice and comment.

The WOTUS Rule demonstrates what happens when agencies refuse to follow the APA's rulemaking process. As discussed below, five of the Rule's central components are arbitrary, having no support in the administrative record. That is a direct result of the broken rulemaking process leading to the enactment of the WOTUS Rule, where EPA shaped the rule around these five components behind closed doors, while rejecting the Corps' calls for public input.

A. Five Of The WOTUS Rule's Central Components Are Arbitrary And Have No Support In The Record

Under basic principles of administrative rulemaking, a rule is unlawful if it is unsupported by the evidence in the rulemaking record. *See State Farm*, 463 U.S. at 41–42. An agency cannot make up for a lack of record evidence with "conclusory statements." *Amerijet Int'l, Inc. v. Pistole*, 753 F.3d 1343, 1350 (D.C. Cir. 2014)

(citation omitted). EPA built the WOTUS Rule around five distance-based components, but those components have no support in the administrative record.

The WOTUS Rule's first three illegal components deal with its adjacency definition. The Rule declares that all "adjacent" non-farmland waters are always within federal jurisdiction, and then, as relevant here, defines adjacency through three concepts: (1) waters within 100 feet of a primary water, impoundment, or "tributary"; (2) waters within a 100-year floodplain and 1,500 feet of a primary water, impoundment, or "tributary"; and (3) waters within 1,500 feet of the high-tide line of a primary water. 33 C.F.R. § 328.3(c)(2). There is no support in the record for these three concepts. To take just one example, nothing in the record supports the Rule's conclusion that every non-farmland water in this country that is connected to a primary water, impoundment, or tributary *once every hundred years*, and is within 1,500 feet of such a feature, is always subject to federal jurisdiction. As the Corps explained to EPA during the rulemaking process, the Rule's approach is "not supported by science or law." Memorandum from Lance Wood, Assistant Chief Counsel for Regulatory Affairs, U.S. Army Corps of Eng'rs, to Deputy Commanding General for Civil and Emergency Operations, U.S. Army Corps of Eng'rs, Legal Analysis of Draft Final Rule on Definition of "Waters of the United States" (Wood Memo), at 5 (April 24, 2015).[2] Put more simply, the inclusion of all three of these

[2] https://www.epw.senate.gov/public/_cache/files/94d5f9d0-2a56-47ee-aa44-4dcf7c9f6a94/07.17.15-army-corps-darcy-with-7-attachments-responses-to-07.16.15.pdf.

central adjacency features was an arbitrary decision, based merely on "conclusory statements," and was thus illegal under the APA. *Amerijet*, 753 F.3d at 1350.

The Rule's next two arbitrary components deal with its case-by-case waters category. The Rule provides that such waters include (1) those within the 100-year floodplain of a primary water, and (2) those within 4,000 feet of a primary water, impoundment, or tributary. 33 C.F.R. § 328.3(a)(8). Again, there was no support for these components in the administrative record. As the Corps explained to EPA, there is "no basis in science or law" for these "arbitrary" components. *See* Wood Memo at 2. Even though the prior Administration filed a 245-page brief seeking to defend the Rule before the Sixth Circuit, it did not cite any record evidence to support the specific distances it selected either here, or as part of the adjacency definition. *See* Brief For Respondents, 2017 WL 372073 (6th Cir. Jan. 13, 2017). The reason for that glaring deficiency is obvious: no such record evidence exists.

B. The WOTUS Rule's Five Arbitrary Central Components Are The Direct Result Of EPA's Decision To Violate The APA's Rulemaking Process

The illegality of the WOTUS Rule is not mere happenstance; rather, it is the direct result of EPA's unprecedented decision to shut the public out of the rulemaking process, in plain violation of the APA's notice-and-comment requirement.

To understand the broken process that led to the WOTUS Rule, a little background is helpful. The proposed version of the WOTUS Rule, published on April 21, 2014, 79 Fed. Reg. 22,188 (Apr. 21, 2014), took an unbounded view of federal jurisdiction, such that there were no meaningful limitations on either the adjacency

or case-by-case waters categories. In light of the Supreme Court's decisions in *SWANCC* and *Rapanos*, this proposed approach was obviously illegal and could never become the law of the land. *Id.* at 22,269. In attempting to address the problem, EPA decided that the APA's mandatory rulemaking procedures were too cumbersome and took an unprecedented shortcut. Internal memoranda, available on this Committee's website, strongly suggest what occurred: EPA decided—contrary to the plain requirements of the APA and the Corps' advice—to rewrite the WOTUS Rule around the five central components discussed above, without obtaining any public input on whether these components were reasonable and lawful.

This behind-closed-doors approach violated the APA's bedrock rulemaking requirements. The APA mandates that a rule that an agency adopts must be made available for public notice and comment. 5 U.S.C. § 553(b). This process is "designed (1) to ensure that agency regulations are tested via exposure to diverse public comment, (2) to ensure fairness to affected parties, and (3) to give affected parties an opportunity to develop evidence in the record to support their objections to the rule and thereby enhance the quality of judicial review." *See Int'l Union, UMWA v. MSHA*, 407 F.3d 1250, 1259 (D.C. Cir. 2005). An agency satisfies this obligation only when the final rule is sufficiently grounded in the proposed rule, such that the final rule can fairly be said to be a "logical outgrowth" of the proposal. *Long Island*, 551 U.S. at 174. That means the agency must select its final rule only from a "range of alternatives being considered" that it informed the public about. *See Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 549 (D.C. Cir. 1983).

In adopting the final WOTUS Rule's five distance-based components discussed above, EPA violated this notice-and-comment requirement. Specifically, the proposed rule defined adjacency without any distance-based elements whatsoever. In the final WOTUS Rule, however, adjacency was defined as (1) waters within 100 feet of a primary water, impoundment, or "tributary"; (2) waters within a 100-year floodplain and 1,500 feet of a primary water, impoundment, or "tributary"; and (3) waters within 1,500 feet of the high-tide line of a primary water. 33 C.F.R. § 328.3(c)(2). Similarly, with regard to case-by-case waters, the proposed rule included a boundless approach, while the final Rule considered only (1) waters within the 100-year floodplain of a primary water, and (2) waters within 4,000 feet of a primary water, impoundment, or tributary. 33 C.F.R. § 328.3(a)(8). *There was no suggestion in the proposed rule that any of these five distance-based components were being considered as the way to fix the obvious illegality of the proposal.* The Corps urged EPA to let the public know what it was up to, in order to get public input, but EPA declined to do so. *See* Wood Memo at 4 ("the public did not have the opportunity . . . to comment on [important aspects of the WOTUS Rule] during the public comment period and thus the addition of this limitation likely violates the" APA).

The result of EPA's decision to skirt the law was predictable: even though there were over one million comments submitted on the proposed rule, the prior Administration's 245-page brief before the Sixth Circuit was not able to identify even a single comment discussing the merits or demerits of these five components. As the Sixth Circuit explained in staying the Rule, EPA "failed to identify anything in the

record that would substantiate a finding that the public had reasonably specific notice that the distance-based limitations adopted in the Rule were among the range of alternatives being considered." *In re EPA*, 803 F.3d at 807. The District of North Dakota reached the same conclusion. *See North Dakota*, 127 F. Supp. 3d at 1058.

As the Petitioner States explained to the Sixth Circuit, EPA's decision to cut the public out of the process of evaluating the five distance-based components is "one of the most significant procedural failures in the history of the Administrative Procedure Act." *See* Opening Brief of State Petitioners, 2016 WL 6566251, at *4 (6th Cir. Nov. 1, 2016) (Attachment 1). In prior cases, courts have invalidated agency rules even for failure to get public input on narrow issues, such as the definition of a "small refinery," *Small Refiner*, 705 F.2d at 549, or whether the listing of wastes would play a "supplementary" or "heavy" role in an analysis, *Shell Oil Co. v. EPA*, 950 F.2d 741, 751–52 (D.C. Cir. 1991). The procedural defect in this case was far more serious. EPA decided it could change the meaning of the entire Clean Water Act—an Act that significantly impacts States, farmers, homeowners, and small businesses throughout the country—without even letting the public know that it was considering its five distance-based components. Had EPA taken the lawful approach that the APA requires, and that the Corps urged, the States would have been eager to provide EPA with detailed maps, comments, and data, explaining why the components in the WOTUS Rule were overbroad. EPA's decision to cut the public out of the rulemaking process predictable led to situation where the final Rule that it adopted is entirely arbitrary.

II. The WOTUS Rule Violates The Clean Water Act

The WOTUS Rule is illegal for another reason: it asserts federal authority far beyond what Congress has authorized under the Clean Water Act.

Two Supreme Court decisions are relevant to understanding the WOTUS Rule's violation of the Clean Water Act. First, in *SWANCC*, the Court held that the Corps could not sweep waters into federal jurisdiction simply because those waters "are or would be used as habitat" by migratory birds. 531 U.S. at 164. Second, in *Rapanos*, the Supreme Court held that the Corps had improperly asserted authority over intrastate wetlands that were not substantially connected to navigable-in-fact waters. The Court majority in *Rapanos* included an opinion written by Justice Scalia for four Justices and a separate opinion written by Justice Kennedy. Justice Scalia concluded that the Clean Water Act extends "to only those relatively permanent, standing or continuously flowing bodies of water 'forming geographic features' that are described in ordinary parlance as 'streams[,] . . . oceans, rivers, [and] lakes,'" *Rapanos*, 547 U.S. at 739 (Scalia, J., plurality) (quoting *Webster's New International Dictionary* 2882 (2d ed. 1954)), and "wetlands with a continuous surface connection to" those waters, *id.* at 742. Justice Kennedy, for his part, concluded that the Act extends only to navigable-in-fact waters and waters having a "significant nexus" to navigable waters. 547 U.S. at 779 (Kennedy, J., concurring in the judgment). Justice Kennedy explained that federal jurisdiction does not extend to all "wetlands (however remote)" or all "continuously flowing stream[s] (however small)." *Id.* at 776.

The WOTUS Rule violates *SWANCC* and *Rapanos* in numerous respects.

A. *Per Se* Jurisdiction Over All Tributaries. The WOTUS Rule's conclusion that all "tributaries" are *per se* within federal jurisdiction violates *Rapanos*. The Rule defines "tributaries" as any features with "a bed and banks and an ordinary high water mark" that "contributes" any amount of "flow," "either directly or through another water," to a primary water. 33 C.F.R. § 328.3(c)(3). This includes "perennial, intermittent, [and] ephemeral" streams with "flowing water only in response to precipitation events in a typical year." 80 Fed. Reg. at 37,076. The Rule's inclusion of intermittent and ephemeral streams violates Justice Scalia's approach, given that Justice Scalia explained that "channels containing merely intermittent or ephemeral flow" fall outside of federal jurisdiction. 547 U.S. at 733 (Scalia, J., plurality). It also violates Justice Kennedy's approach. Justice Kennedy criticized the Corps' prior reliance on the concept of ordinary high water mark to establish federal jurisdiction, explaining that relying upon this measure could impermissibly sweep in "drains, ditches, and streams remote from any navigable-in-fact water and carrying only minor water volumes toward it." *Id.* at 781 (Kennedy, J., concurring in the judgment). As the District of North Dakota explained, "the breadth of the definition of a tributary set forth in the Rule . . . is precisely the concern Justice Kennedy had in *Rapanos*." *North Dakota*, 127 F. Supp. 3d at 1056.

B. *Per Se* Jurisdiction Over All "Adjacent" Waters. The WOTUS Rule's coverage over all non-farmland adjacent waters—including waters near tributaries or near navigable-in-fact waters only during once-in-a-century floods—similarly violates *Rapanos*. *See* 33 C.F.R. § 328.3(c)(2). The Rule's adjacency approach is

contrary to Justice Scalia's opinion in *Rapanos*, which requires a federal jurisdictional water to be connected through a "relatively permanent, standing or flowing bod[y] of water." *See Rapanos*, 547 U.S. at 732 (Scalia, J., plurality). The Rule's adjacency category just as plainly violates Justice Kennedy's test. Justice Kennedy explained that the Corps' prior "regulation of drains, ditches, and streams remote from any navigable-in-fact water and carrying only minor water volumes toward it . . . precludes its adoption as the determinative measure of whether adjacent wetlands are likely to play an important role in the integrity of an aquatic system comprising navigable waters as traditionally understood." *Id.* at 782 (Kennedy, J., concurring in the judgment). The Rule adopts precisely the approach that Justice Kennedy held was "prelude[d]," sweeping into federal jurisdiction any water near the 100-year flood plain of a tributary. 33 C.F.R. § 328.3(a)(8). More generally, the Rule's approach to adjacency—covering waters based upon a hydrological connection once a century—is contrary to Justice Kennedy's explanation that "[a] mere hydrologic connection should not suffice in all cases." *Id*. at 784–85.

C. Expansive Approach To Case-By-Case Waters. Under the Rule, a water that is (1) "located within the 100-year floodplain" of a primary water or (2) "located within 4,000 feet of the high-tide line or ordinary high water mark" of a primary water, impoundment or tributary, falls under federal jurisdiction if the water has a "significant nexus" to a primary water. 33 C.F.R. § 328.3(a)(8). The way that the Rule defines "significant nexus" is unlawful. The Rule findings significance by looking at the "chemical, physical, or biological" impact of an isolated water on

primary waters, "either alone or in combination with other similarly situated waters in the region." 33 C.F.R. § 328.3(c)(5). This includes concepts such as "[c]ontribution of flow," "[e]xport of organic matter," "[e]xport of food resources," and "[p]rovision of life cycle dependent aquatic habitat" for "species located in" primary waters, such as "[p]lants and invertebrates" "'hitchhiking'" on waterfowl. *Id.* §§ 328.3(c)(5)(vi)–(ix); Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence ("Connectivity Study"), 5-5, EPA-HQ-OW-2011-0880-20859.

This approach violates Supreme Court precedent in numerous respects. Most obviously, the Court's decision in *SWANCC* held that the Corps could not base federal jurisdiction on migratory birds regularly landing in a particular intrastate water. *SWANCC*, 531 U.S. at 164. The WOTUS Rule would sweep in these exact waters because "[p]lants and invertebrates" "'hitchhik[e]'" on migratory birds. Connectivity Study at 5-5. And that is just the tip of the iceberg. Under the WOTUS Rule, EPA would no longer need to adopt the sort of issue-specific rules that the Supreme Court invalidated in *SWANCC*. Had the Rule gone into effect, EPA would have been able to assert jurisdiction over almost any water it wanted by relying upon any number of the virtually limitless concepts that it embedded in its case-by-case waters category.

CONCLUSION

Thank you for giving me the opportunity to testify before this Committee today. I look forward to answering any questions you may have.