Office of the Secretary of the North Carolina Department of Environmental Quality
and
Office of the Attorney General of the State of North Carolina

April 15, 2019

Docket ID No. EPA-HQ-OW-2018-0149

Andrew Wheeler
Administrator, U.S. Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, D.C. 20460

R.D. James
Assistant Secretary of the Army for Civil Works
108 Army Pentagon
Washington, D.C. 30310-0108

Subject: Comments of the North Carolina Department of Environmental Quality and the Office of the North Carolina Attorney General on Proposed Revised Waters of the United States ("WOTUS") Rule

Dear Administrator Wheeler and Assistant Secretary James:

Thank you for the opportunity to provide comments on the Revised Waters of the United States Rule published in the *Federal Register* on February 14, 2019 (the "Proposed Rule").

The mission of the North Carolina Department of Environmental Quality ("NCDEQ") is to provide science-based environmental stewardship for the health and prosperity of all North Carolinians. The agency is responsible for implementing several state and federal programs that will be impacted by the Proposed Rule, including North Carolina's water quality standards program, the National Pollutant Discharge Elimination System ("NPDES") permitting program, National Primary Drinking Water Regulations, and the 401 water quality certification program. Drawing on its extensive knowledge of North Carolina's waters and experience implementing these programs, NCDEQ offers these comments on the Proposed Rule and its anticipated impact in North Carolina.

The North Carolina Attorney General is charged with protecting public resources and is legal counsel for NCDEQ.

Federal water quality protections play a vital role in ensuring that our communities have safe, clean drinking water, in protecting essential wildlife habitat, and supporting local economies that rely on clean water to thrive. These protections are essential to preserving ecosystem services,

including flood protection and water purification, provided by wetlands and by natural stream features.

We support a reasonable, science-based approach to defining the Waters of the United States ("WOTUS"). The definition of WOTUS should protect those features essential for providing clean water. It should also provide clarity to the regulated community and avoid unnecessarily burdening farmers and developers employing responsible environmental practices.

The purpose of the Clean Water Act is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[1] Dramatically narrowing the definition of WOTUS in the way EPA and the Department of the Army ("Agencies") propose would thwart the Act's purpose. The Proposed Rule would take away many protections currently in effect in our state. The Agencies must provide some reasoned basis, grounded in the statute, for removing federal protections from these waters.

Instead, the Proposed Rule removes federal protections from broad categories of essential wetland and stream features on the basis of arbitrary distinctions that have little to do with science or ensuring clean water. For example, the Proposed Rule would remove protections from wetlands that lack a surface hydrological connection, no matter how closely connected those wetlands are with a traditionally navigable water through subsurface flow. The Proposed Rule, if adopted, would not take into consideration how significantly those wetlands affect the navigable water's chemical, physical and biological integrity.[2] In short, the Proposed Rule would remove protection from wetlands and stream features that are critical to the health of North Carolina's navigable waters.

We cannot support a rule that arbitrarily excludes large swaths of vitally important wetlands and stream features from federal protection. We further object to the fact that the Agencies propose to strip away longstanding protections for critical water features without providing adequate time or resources to support state efforts to fill the large gap created by the Agencies' proposal.

We oppose the Proposed Rule because it removes protections from waters that are crucial to restoring and maintaining the chemical, physical and biological integrity of our State's waters. In this letter, we make clear the unique value of these features to North Carolina and explain our opposition to the Proposed Rule. In Attachment 1, NCDEQ has provided technical comments responsive to specific inquiries from the Agencies in the Proposed Rule.

I. North Carolina's Unique Environmental Landscape and the Importance of Wetlands in North Carolina

To understand the potential effects of the Proposed Rule within the state of North Carolina, it is important to consider the State's unique geography and ecology. In 1990, wetlands covered an estimated 5.7 million acres (8,906 square miles) of North Carolina, or 17% of the land area of the State. Ninety-five percent of those wetlands are located in North Carolina's coastal plain,[3] but

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[1] 33 U.S.C.A. § 1251.
[2] *See* 84 FR 4155.
[3] US Geological Survey, *National Water Summary on Wetland Resources*, pp. 297-302 (1996) USGS Water-Supply Paper 2425. https://www.fws.gov/wetlands/data/Water-Summary-Reports/National-Water-Summary-Wetland-Resources-North-Carolina.pdf.

wetlands of unique ecological significance and great importance to the health of traditionally navigable waters are located throughout the State. For example, the mountain region contains headwater wetlands that are the source for many of the great rivers of North Carolina. Protecting those headwaters is essential for the health of downstream waters.

Across the State, wetlands and streams are under pressure from rapid growth in North Carolina's population. Between 2010 and 2020, the US Census Bureau projects that North Carolina will have gained more than 1 million new residents, reaching a population of nearly 10.6 million. Much of that growth is occurring in areas with a large percentage of wetlands. For example, one study has projected growth ranging from 6% to more than 18% in the coastal plain counties of Currituck, Dare, Pitt, Carteret, Duplin, Cumberland, Onslow, Pender, New Hanover, and Brunswick.[4] Without federal protections, and without adequate time for States to step into the breach, this future growth will occur without the constraints necessary to protect these valuable resources.

We are particularly concerned by the changes to the coverage of wetlands under the Proposed Rule. Wetlands are a critical component of North Carolina's environmental landscape. North Carolina's wetlands include unique ecological features like Carolina Bays and Pocosins and provide critical ecosystem services to the people of the State.

A. Wetlands and Flooding

In addition to their intrinsic value as unique ecological communities, wetlands are also good neighbors. They protect the surrounding area by storing and slowing rapid runoff of stormwater, minimizing the danger of damaging floods. Water stored in wetlands after rains can be absorbed into the groundwater or released gradually through surface outflow. Purdue University Cooperative Extension Service found one acre of wetland can hold approximately 330,000 gallons of water. When that acre of wetland is removed, those 330,000 gallons are no longer stored in the wetland; instead, this water flows unimpeded directly to traditional navigable waters, increasing the risk of flooding.[5] By providing storage capacity during storm events, wetlands help moderate water levels in streams and decrease the likelihood of flash flood events.

These features are particularly important in an era of increasingly dangerous storm events with accompanying flooding. In the past three years alone, North Carolina has been hit with two storms of record-breaking destructive power. The NC Office of Budget and Management estimated the damage from Hurricane Florence at nearly $17 billion and from Hurricane Matthew at $4.8 billion (adjusted with inflation).[6] Hurricane Florence also claimed 44 lives in North Carolina.[7] Most of

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[4] Rebecca Tippett, Carolina Population Center, *Population Growth in the Carolinas: Projected vs. Observed Trends* (Dec. 8, 2015) https://demography.cpc.unc.edu/2015/12/08/population-growth-in-the-carolinas-projected-vs-observed-trends/.

[5] Purdue University Cooperative Extension Service, *Wetlands and Water Quality* (1990) https://www.extension.purdue.edu/extmedia/WQ/WQ-10.html.

[6] Press Release, North Carolina Governor's Office, *Updated Estimates Show Florence Caused $17 Billion in Damage* (Oct. 31, 2018), https://governor.nc.gov/news/updated-estimates-show-florence-caused-17-billion-damage.

[7] Press Release, North Carolina Governor's Office, *Six Months After Florence Made Landfall, North Carolina Continues Work to Rebuild* (Mar. 12, 2019), https://governor.nc.gov/news/six-months-after-florence-made-landfall-north-carolina-continues-work-rebuild.

this damage was caused by floodwaters. In relation to U.S. storms over the last 70 years, Florence produced the second-highest amount of rain in a concentrated land area.[8] Without the storage capacity of North Carolina's remaining wetlands in the coastal plain, the damage could have been even more catastrophic. These back-to-back hurricanes, which would have once been considered extremely rare in North Carolina,[9] are projected to increase in frequency, power, and duration.

B. Wetlands as Filters

In addition to acting as sponges, wetlands help clean water that passes through them before reaching traditional navigable waters. When water enters a wetland, it slows down, allowing much of the suspended sediment to drop out and settle to the wetland floor. Plants and microorganisms absorb excess nutrients before the water leaves the wetland, making the water healthier for drinking, swimming, and supporting other plants and animals. Because wetlands are so effective at removing pollutants, engineers construct wetlands to replicate the natural wetland functions.[10] North Carolina's Pocosins have particularly slow water movement through them, which accounts for their important role in filtering sediment and nutrients from runoff before entering the State's estuaries.[2]

C. Wetlands and the Economy

Wetlands are also vitally important for numerous economically significant products and activities in North Carolina. Fish, shellfish, blue crabs and shrimp—all vital to North Carolina's commercial and recreational fisheries—depend on coastal saltmarshes for habitat and food. Inland freshwater wetlands also affect estuarine water quality and productivity and provide spawning grounds for anadromous fish like striped bass and American Shad. Ducks and geese also rely on wetlands as vital habitat as they migrate along the Atlantic Flyway.

Recent economic estimates from the NC Division of Marine Fisheries state that in 2017, over $430 million of revenue was generated from commercial fisheries and approximately $3.9 billion of economic impact was generated from recreational fisheries.[11] According to the US Fish and

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[8] Borenstein, S., *Florence Is Nation's Second Wettest Storm, Behind Harvey*, WFTV (Sep. 27, 2018), https://www.wftv.com/weather/eye-on-the-tropics/florence-is-nation-s-second-wettest-storm-behind-harvey/842701535.

[9] *See* Risk Management Solutions, *Hurricane Florence: Rainfall up to a 1,000-Year Return Period* (Sep. 14, 2018), https://www.rms.com/blog/2018/09/14/hurricane-florence-rainfall-up-to-a-1000-year-return-period/; Office of Water Prediction, National Weather Service, *Hurricane Matthew, 6-10 October 2016 Annual Exceedance Probabilities (AEPs) for the Worst Case 24-Hour Rainfall* (Oct. 18, 2016) http://www.nws.noaa.gov/ohd/hdsc/aep_storm_analysis/AEP_HurricaneMatthew_October2016.pdf.

[10] U.S. Environmental Protection Agency, *Economic Benefits of Wetlands*, EPA842-F-06-004 (2006) https://www.epa.gov/sites/production/files/2016-02/documents/economicbenefits.pdf.

[11] North Carolina Division of Marine Fisheries, License and Statistics Section. 2018 Annual Report, November 2018, http://portal.ncdenr.org/c/document_library/get_file?p_l_id=1169848&folderId=32492807&name=DLFE-139619.pdf.

Wildlife 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, over $2 billion were spent in North Carolina on fishing and hunting.[12]

In addition to hunting and fishing, many wetlands offer opportunities for recreational activities. Indeed, almost all of the public recreation areas in the coastal area include significant wetlands. Visits to these and other wetland wildlife refuges are an important part of the tourist economy in some coastal counties.[13]

As recounted above, wetlands provide water filtration and flood protection that are also of economic value. By preserving wetlands, North Carolina can save money that would otherwise be spent on runoff control, water treatment, and property armoring to protect against floodwaters.

D. Wetlands and Biodiversity

Carolina Bays and Pocosins, both prevalent within the NC Coastal Plain, are largely unique to North Carolina. Pocosins provide a refuge for reclusive animals like the black bear and bobcat and vital habitat for migratory birds. Carolina Bays are critical habitat for many rare amphibians and reptiles. Over twenty species of amphibians and reptiles on the North Carolina list of Species of Greatest Conservation Need could face habitat loss from the proposed changes to WOTUS. Habitat loss could result in some of these species being considered for future listing as state or federal Threatened or Endangered Species.

North Carolina supports the greatest biodiversity of amphibians in the country, in large part because of the valuable habitat provided by the State's wetlands. Small wetlands throughout the mountains and piedmont are home to over 80 species of rare or endangered plants. Statewide, over 70% of rare and endangered plants and animals depend on wetlands.[14] Without its wetlands, coastal North Carolina would have much less biological diversity and would be a far less interesting place to live or visit.

E. Wetlands and Climate Change

When it comes to climate change, wetlands are a key indicator of the problem and a large part of the solution. For example, rising sea levels pose a significant threat to coastal and inland wetlands. Along the coasts, the rising seas can inundate salt water marshes that are not adapted to life completely underwater. Rising seas also cause salt water to intrude further inland disrupting the balance of brackish estuarine wetlands and pushing brackish water into formerly freshwater wetlands. This increased salinity from sea level rise can kill trees and plants that provide the

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[12] U.S. Fish & Wildlife Service and U.S. Census Bureau, 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation, https://www.census.gov/prod/2012pubs/fhw11-nat.pdf.

[13] N.C. Department of Environmental Quality, *Wetlands* https://deq.nc.gov/about/divisions/coastal-management/coastal-management-estuarine-shorelines/wetlands (last visited Apr. 9, 2019).

[14] US Geological Survey, *National Water Summary on Wetland Resources* 297 (1996) USGS Water-Supply Paper 2425. https://www.fws.gov/wetlands/data/Water-Summary-Reports/National-Water-Summary-Wetland-Resources-North-Carolina.pdf.

backbone of these ecosystems and cause wetland surfaces to sink below the water, adding to the loss of wetlands.[15]

At the same time, wetlands are also crucial tools to mitigate the impacts of climate change. As recounted above, wetland storage capacity provides critical flood protection as severe storm events increase.

II. Opposition to the Proposed Rule

We oppose the Proposed Rule because it fails to protect waters that are crucial to fulfilling the purpose of the Clean Water Act: restoring and maintaining "the chemical, physical, and biological integrity of the Nation's waters."[16] The Proposed Rule eliminates protections for many of the State's water resources on the basis of arbitrary dividing lines that have no valid basis in science. By abdicating federal responsibility for protecting these waters, the Proposed Rule actively circumvents the goals of the Clean Water Act.

Excluding wetlands that have a significant nexus to traditionally navigable waters but lack a direct surface hydrologic connection makes no sense from a scientific perspective. These wetlands often serve as the first line of defense in protecting traditionally navigable waters, through improving water quality, retaining rain and storm water, and dispersing storm energy. For example, wetlands connected via subsurface flow can have a significant impact on the chemical integrity of traditionally navigable waters by performing filtering services. And wetlands need not be connected on the surface to provide the storage and protection services detailed above.

Features also need not be continually flowing to be important. The Proposed Rule would eliminate protection for ephemeral streams currently protected in North Carolina. Ephemeral streams and wetlands protect and improve water quality by receiving, guiding, and holding water from rain events providing filtering and energy dissipation before the water reaches downstream features. While these features do not carry water all year, the water they do carry would have a direct path to the downstream jurisdictional feature if they are removed, increasing the input of pollutants into other jurisdictional waters.

The anticipated loss of jurisdictional wetlands (e.g., hardwood flats, pine savanna and headwater wetlands) from the revised definition of "adjacent" in the Proposed Rule is very concerning. As previously stated, 95% of North Carolina's wetlands are located in the coastal plain. With the pressure of projected population growth, and the high likelihood of conversion of non-jurisdictional wetlands to urbanization and other land uses, the management of stormwater in the coastal plain counties will continue to become more difficult. These impacts are significant. As previously stated, one acre of wetland can hold approximately 330,000 gallons of water. When wetlands are removed, those 330,000 gallons can no longer be stored in the wetland; instead, this water flows unimpeded directly to streams and rivers, increasing the risk of flooding.[17] This loss

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[15] U.S. Environmental Protection Agency, *What Climate Change Means for North Carolina* (2016) https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-nc.pdf.
[16] 33 U.S.C. § 1251.
[17] Purdue University Cooperative Extension Service, *Wetlands and Water Quality* (1990) https://www.extension.purdue.edu/extmedia/WQ/WQ-10.html.

of stormwater storage capacity dramatically decreases the resilience of a watershed to large storm events such as hurricanes.

In addition to the loss of flood protection, losing these wetlands means losing their capacity to mitigate the loss of sediment and provide for filtration. Instead of filtering out sediment and nutrients, these areas will likely have increased stormwater runoff. The resulting sediment and nutrient loading from this runoff could result in the closure of prime shellfish waters, as well as increases in harmful algal blooms and fish kills, all of which would negatively impact North Carolina's economy and frustrate NCDEQ's efforts to comply with its EPA-approved antidegradation policy.[18]

The Proposed Rule's effects belie the Agencies' claim that it is based on respecting state and tribal authority over their own waters, by failing to provide adequate time or resources to support any state efforts to fill in the gap. Many states, including North Carolina, currently lack programs to regulate some areas that are currently WOTUS but will no longer be WOTUS under the Proposed Rule. To ensure that these wetlands remain protected, North Carolina and similarly situated states may need to propose, pass, and implement new statutes and regulations, as well as hire and properly train their staff. These states may lack adequate time to expand their own regulatory programs for protection of these important resources.

The Proposed Rule also poses implementation problems which the Agencies have thus far ignored. As explained above, the Proposed Rule removes wetlands that lack a direct surface hydrological connection. For projects that bisect a wetland, thus severing a portion of it from surface connection, additional permitting review will likely be required to fully assess the extent of proposed impact and loss of WOTUS. Applicants may be required to modify their proposal to not sever jurisdiction or provide increased mitigation to account for the loss of jurisdictional waters in addition to those directly impacted.

In sum, we support increased clarity and predictability in identifying WOTUS, but the Agencies cannot discount the complexities of identifying the jurisdictional limits of the water resources they are tasked by Congress to regulate. The federal government should not abdicate its responsibilities on the basis of arbitrary cutoffs that have no basis in science and are not consistent with the goals of the Clean Water Act.

III. Conclusion

We support a reasonable, science-based approach to defining WOTUS. Such an approach would not only preserve those features essential for preserving clean water, but would also provide clarity to those whose activities fall under the rule, avoiding unnecessary burden on farmers and developers who employ responsible environmental practices. As currently drafted, the Proposed Rule does not meet this test. Instead, it draws arbitrary dividing lines that sacrifice the health of the nation's waters and will lead to more confusion for farmers and developers. As a result, we cannot support the Proposed Rule, and we request that it be revised to provide clarity and reflect the vital importance of wetlands and ephemeral stream features to the health and welfare of the people of North Carolina.

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[18] *See* 15A NCAC 02B .0201.

Sincerely,

Michael S. Regan,
Secretary, NCDEQ

Joshua H. Stein
Attorney General of North Carolina

Attachment

cc: The Honorable Roy Cooper
Chairman A. Stanley Meiburg, NC Environmental Management Commission
Ms. Sheila Holman, Assistant Secretary for the Environment, NCDEQ
Ms. Linda Culpepper, Director, NC Division of Water Resources

Attachment 1

North Carolina Department of Environmental Quality's Detailed Comments on Proposed Revised Waters of the United States ("WOTUS") Rule

North Carolina Department of Environmental Quality's Detailed Comments on Proposed Revised Waters of the United States ("WOTUS") Rule

Roman numerals and letters in headings below correspond to the roman numerals and headings in the Proposed Rule, 84 Fed. Reg. 4154 (Feb. 14, 2019). Italicized text is quoted from the Proposed Rule.

II. Background

A. Executive Summary

- p. 4155-4156 *"the agencies are soliciting comment as to how they could establish an approach to authorize States, Tribes, and Federal agencies to establish geospatial datasets of 'waters of the United States,' as well as waters that the agencies propose to exclude, within their respective borders of approval by the agencies."*

  NCDEQ has concerns regarding the accuracy of the maps that are currently available for creating such a dataset. The National Wetland Inventory (NWI) maps for North Carolina's wetlands are not accurate or reliable. North Carolina has stream maps for some watersheds. Creating them has been time-intensive and costly; they required years of modeling and field verification. Even in the field, it can be difficult to make an ephemeral, intermittent, or perennial stream determination; making a stream determination using remote data would be even less accurate.

  EPA and the United States Army Corps of Engineers (Corps) staff have stated that the long-term goal is for these determinations to be made from the office. Based on NCDEQ's experience, mapping may be helpful for predicting where streams and wetlands are likely to be found, but field verification will likely always be necessary.

B. The Clean Water Act and Regulatory Definition of "Waters of the United States"

- p. 4160 *"In addition to the six categories of 'jurisdictional by rule' waters, the 2015 Rule identifies two other categories of waters that are subject to a case-specific analysis to determine if they have a 'significant nexus' to a primary water... Carolina and Delmarva bays, pocosins..."*

  EPA has previously acknowledged that Carolina Bays and Pocosins, both prevalent within the NC Coastal Plain, are wetland types that may significantly impact the chemical, physical and biological integrity of navigable waters even though an intermittent or perennial surface connection may not be evident. The proximity of these features to navigable and/or jurisdictional waters enhances their ability to provide water quality improvement and/or protection, flood retention, and storm abatement throughout the NC Coastal Plain. North Carolina's Pocosins have particularly slow water movement through them, which accounts for their important role in preventing rapid surface runoff, in turn filtering sediment and nutrients from runoff before entering the state's estuaries. Removal of these wetlands may exclude many Pocosins and Carolina Bays from protection, thus increasing the potential threats of hurricanes and other large storm events in NC's Coastal Plain ecoregion.

III. Proposed Definition of "Waters of the United States"

A. Traditional Navigable Waters and Territorial Seas

- p. 4170 *"The agencies are not proposing to replicate this definition [territorial seas] in this proposed rule, but request comment on whether adding the definition would improve regulatory clarity."*

  Including the definition in the rule (at least in the definitions page) will provide clarity and will prevent readers from having to find the definition in other federal rules.

B. Interstate Waters

- p. 4172 *"The agencies welcome comment on this proposed change, including the rationale for and against having interstate waters as a separate jurisdictional category."*

  NCDEQ recommends that interstate water remain its own separate category. The federal government has authority to regulate interstate commerce and as such all interstate waters should remain WOTUS. Failure to regulate such waters at the federal level may lead to conflicts between the neighboring states over which state's regulatory regime should govern. The interstate waters category should include waters between states, between states and tribes, and between states and foreign countries.

C. Impoundments

- NCDEQ requests that the agencies clarify when impoundments with human-controlled outlet structures will be considered jurisdictional. As written, the Proposed Rule could allow operators to manipulate the flow of water from impoundments to sever jurisdiction of the impoundment and all waters upstream. This could detrimentally impact drinking water supply reservoirs and does not align with the goals of the CWA.

- p. 4173 *"The agencies welcome comment on whether impoundments are needed as a separate category of 'waters of the United States,' or whether the other categories of waters in this proposed rule effectively incorporate the impoundment of other jurisdictional waters, such as lakes and ponds category."*

  Impoundments should remain as a separate category for more clarity. Including impoundments in the Lakes and Ponds category will create ambiguity.

- p. 4173 *"The agencies also welcome comment on whether certain categories of impoundments should not be jurisdictional, such as certain types of impoundments that release water downstream only very infrequently or impeded flow downstream such that the flow is less than intermittent."*

  Human-induced modification of a WOTUS—including impoundments—should not remove the water body from federal jurisdiction. If a feature located upstream of an impoundment does not have at least intermittent flow to a traditionally

navigable water ("TNW") due to the outlet of the impoundment, that fact should not remove it from federal jurisdiction.

D. Tributaries

- NCDEQ has concerns regarding the agencies' limitation of the proposed definition of tributaries to include only naturally occurring surface water channels with intermittent or perennial flow as WOTUS. The complete removal of ephemeral streams from the tributary definition under the proposed Rule, with the lack of an established method of determining whether the stream is considered "ephemeral", is further compounded when excluding the use of an ordinary high water mark ("OHWM") in the new proposed tributary definition. The problem arises from establishing other metrics to assist in determining classification of a stream. Currently, the agencies have no formal nationally applicable method for determining whether a stream is ephemeral, intermittent, or perennial. In establishing such a method, the agencies should take into consideration the functional connection of such streams to the adjacent and/or abutting wetlands that would not be considered jurisdictional under the proposed Rule, much like the current use of significant nexus evaluations. Currently, NCDEQ employs a protocol entitled "*Methodology for the Identification of Intermittent and Perennial Streams and Their Origins Version 4.11*" (NC Method) to identify intermittent, and perennial streams for the application of state riparian buffers. The NC Method utilizes three indicators categories (geomorphology, hydrology, and biology) composed of 26 different attributes with an assigned score to each attribute within the NC Method. Over the last three years, staff have completed over 2,000 determinations a year. Of those, landowners or their agents requested reevaluation by NCDEQ for less than 10 per year (<0.5%) . NCDEQ recommends the Corps employ this method in North Carolina.

- NCDEQ requests the definition of tributary explicitly state that a tributary does not lose its status as a tributary if it flows through a perched culvert. A perched culvert may be caused by poor design, drought conditions, or site changes post construction. These conditions may restrict surface flow to seemingly "ephemeral" flow, or the flow may create a submerged channel, even though proper construction would have maintained intermittent or perennial flow.

- NCDEQ recommends modifying the ephemeral definition to read as follows: "*Ephemeral. The term ephemeral means a feature that carries only stormwater ~~surface water flowing or pooling only~~ in direct response to precipitation (e.g., rain or snow fall) with water flowing only during and shortly after large precipitation events.*"

- NCDEQ recommends modifying the intermittent and perennial definitions to also include channels containing water that may not be flowing. This is particularly important in areas like North Carolina's coastal plain where land elevation is often barely above sea level. NCDEQ recommends modifying both terms as follows:

"The term intermittent means surface water flowing continuously or containing water continuously during certain times of a typical year and more than in direct response to precipitation…" and

"The term perennial means surface water flowing continuously or containing water continuously year-round during a typical year."

- NCDEQ recommends deleting the last sentence in the definition of uplands. It is unnecessary and confusing. For example, there will be wetlands that meet the criteria identified in paragraph (c)(15) that don't meet the adjacent definition as currently proposed. These wetlands are still wetlands, not uplands.

- p. 4175-4176 "*In October 2014, the SAB [Science Advisory Board] completed its peer review ("SAB Review") of the Draft Connectivity Report. While the SAB found that '[t}he literature review provides strong scientific support for the conclusion that ephemeral, intermittent, and perennial streams exert a strong influence on the character and functioning of downstream waters and that tributary streams are connected to downstream waters,' at the same time the SAB stressed that 'the EPA should recognize that there is a gradient of connectivity.*"

  NCDEQ would like to highlight that the agencies have previously acknowledged the value of ephemeral streams as well.

- p. 4177 "*whether the definition of 'tributary' should be limited to perennial waters only.*"

  "Tributary" should not be limited to perennial waters only. Intermittent streams provide flow during significant times of the year. Headwater streams (intermittent and small perennial) drain 55-85% of the land area.[1] Fifty percent of the food flowing through streams for aquatic organisms originates from headwater streams[1]. The small size of the stream ensures a large amount of water-sediment contact, which removes nitrogen from runoff via nitrification and denitrification by bacteria in the sediments.[2] This increased contact also allows a higher rate of adsorption of phosphorus to soil particles in the headwater stream bed than in larger streams.[3] A USFS study found that it would be nearly impossible to

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[1] USFWS. 2000. The value of headwater streams: results of a workshop, State College Pennsylvania, April 13, 1999. State College PA.

[2] Mulholland, P.J., J.L. Tank, D.M. Sanzone, B.J. Peterson, W. Wolheim, J.R. Webster and J.L. Meyer. 2001. Ammonium uptake length in a small forested stream determined by 15N tracer and ammonium enrichment experiments. Verh. Internat. Verein. Limnol. 27:1320-1325.

Peterson, B.J., W.M. Wolheim, P.J. Mulholland, J.R. Webster, J.L. Meyer, J.L. Tank, E. Marti, W.B. Bowden, H.M. Valett, A.E. Hershey, W.H. McDowell, W.K. Dodds, S.K. Hamilton, S. Gregory, D.D. Morrall. 2001. Control of nitrogen export from watersheds by headwater streams. Science 292:86-90.

[3] Dr. James Gregory, Professor Emeritus of Forestry, NC State University, personal communication.

successfully implement pollution control strategies without regulating intermittent streams.[1] Regulating intermittent stream activities is important for accomplishing the purposes of the CWA. Further, the Proposed Rule provides a lengthy discussion and justification for including intermittent streams – see pages 4159-4160 and 4167-4169.

If the agencies do not add ephemeral channels to the tributary definition, NCDEQ recommends that tributary be defined as follows: "*The term tributary means... that contributes ~~perennial or~~ at least intermittent flow to a water identified...*"

- p. 4177 "*whether the definition of 'tributary' as proposed should indicate the flow originate from a particular source, such as a requirement for groundwater interface, snowpack, or lower stream orders that contribute flow.*"

  The "tributary" definition should not require that flow originate from a particular source. The potential sources are myriad and often regionally specific. It is too difficult to capture all possible scenarios in a one-size-fits-all definition.

- p. 4177 "*how effluent-dependent streams should be treated under the tributary definition*"

  Effluent-dependent streams should be included in the "tributary" definition. In North Carolina, there are waste treatment systems that were built in WOTUS. These treatment systems continue to discharge effluent to downstream channels. The flow in the downstream channels is partly made up of the historic flow of the incorporated WOTUS, but the stream is also effluent-dependent due to the nature of the waste treatment system.

- p. 4177 "*whether the tributary definition should include streams that contribute less than intermittent flow to a TNW or territorial sea in a typical year.*"

  Head water streams often contribute less than intermittent flow. Removal of these headwater stream features would remove the important functions these streams have in their ability to slow down the water and allow for ground water recharge. Removing ephemeral features that may have a significant nexus to other surface water features, allows for increased degradation of the larger downstream portions of the system.

- p.4177 "*whether less than intermittent flow in a channel breaks jurisdiction of upstream perennial or intermittent flow and under what conditions that may happen.*"

  It would be problematic for less than intermittent flow to always break jurisdiction of upstream perennial or intermittent flow. In the Triassic basin in North Carolina, streams often fall apart and flow underground for short intervals. From an implementation standpoint, this could be very challenging to have to follow a particular stream channel all the way down to a TNW or monitor flow along the entire channel down to the TNW. If intermittent and perennial flow exists upstream of the feature, increased rain or storm events will increase flow through the ephemeral feature, which will then provide a direct conduit for any

pollutants present in the upstream waters. In addition, if adopted as proposed, creating a break in jurisdiction during a permit review could result in increased mitigation cost to account for the loss of jurisdiction for the entire tributary (or wetland) upstream of the break.

- p. 4178 "*proposed treatment of natural and man-made breaks regarding the jurisdictional status of upstream waters, including whether these features can convey perennial or intermittent flow to downstream jurisdictional waters.*"

  Natural and manmade breaks that have intermittent and perennial flow are still transporting water and pollutants from the upstream segments downstream; therefore, the upstream waters should still be jurisdictional since impacts to those waters will still significantly affect the downstream waters. As noted by the agencies in feedback meetings with the states, a manmade change to a stream or wetland should not defederalize that feature if it is still ultimately conveying at least intermittent flow downstream.

- p. 4178 "*jurisdictional status of breaks themselves*"

  Case-by-case analysis is most appropriate to determine the jurisdictional status of breaks. For example, a riprap pad downstream of a culvert should remain jurisdictional. In North Carolina, a small break, such as one in the range of 5-50 linear feet, can vary over time and should remain jurisdictional. A large break though, such as one measuring 5000 linear feet, should not remain jurisdictional.

- p. 4178 "*an alternate definition that would change the focus of the proposed definition from intermittent flow occurring during certain times of the year to 'seasonal flow'.*"

  The term intermittent flow is more accurate for some of these systems. "Seasonal flow" may restrict certain features to flow at a specific time each year, and for some systems the time of year in which the feature is flowing varies from year to year.

- p. 4178 "*whether the term could instead mean 'water flowing continuously during certain times of a typical year as a result of melting snowpack or when the channel bed intersects the groundwater table'.*"

  Altering the definition from intermittent to "water flowing continuously during certain times of a typical year as a result of melting snowpack or when the channel bed intersects the groundwater table" is inappropriate because it fails to account for the varied sources of intermittent flow. That being said, if the agencies decide to alter the definition, it should be clear that the 'groundwater table' includes the seasonal high-water table.

- p. 4188 "*whether the definition of 'intermittent' should contain the requirement of continuous flow for a specific duration, such as 'at least one month of the calendar year'.*"

NCDEQ does not recommend adding a specific duration and instead retaining the proposed language that allows for a more regional approach. NCDEQ recommended that the agencies employ a region-specific approach during prepublication consultation and NCDEQ continues to support that approach.

- p. 4178 "*whether the tributary definition should include specific flow characteristics*"

  The tributary definition should not include specific flow characteristics (e.g., timing, duration, frequency, or magnitude). First, many of these characteristics are difficult, if not impossible, to assess in a single site visit; thus, evaluation would require a significant increase in work from the field staff assessing each site and/or the landowner. Second, as noted in the preamble, the goal of the CWA is to maintain clean navigable waters and any feature that is contributing to degradation of the downstream waters should be regulated without regard to limited ranges for timing, duration, frequency, or magnitude, especially since various features can have these in various combinations.

- p. 4178 "*whether the concepts of bed and banks and ordinary high water mark should be added to the definition of tributary, and if so, how*"

  Addition of bed and banks and ordinary high-water mark may be useful for some features in some parts of the country. In North Carolina, identifying a bed and bank is one of 26 features NCDEQ staff uses to delineate streams. At the same time, our method acknowledges that at the upper reaches of jurisdiction, there may be breaks where a bed and bank are less pronounced.

- p. 4178 "*whether it is necessary to define 'typical year'*"

  The definition of "Typical year" is acceptable as it is currently proposed. The definition should remain to provide clear unambiguous guidance as to what is meant by the term.

- p. 4178 "*implementation methods and tools that could be used to identify and distinguish perennial and intermittent flow regimes from ephemeral flow regimes as defined in this proposal*"

  The North Carolina Surface Water Identification method has been used successfully in North Carolina and other states to identify and determine intermittent and perennial features.

E. Ditches

- The Proposed Rule states that there are three scenarios under which a feature could be considered a jurisdictional ditch: (1) ditches that satisfy any of the conditions identified in paragraph (a)(1) of this section; (2) ditches that are constructed in a tributary or that relocate or alter a tributary and that satisfy the conditions of the tributary definition and (3) ditches constructed in an adjacent wetland and that satisfy the conditions of the tributary definition. NCDEQ

recommends that these categories be expanded to include ditches used by anadromous fish.

- Reliance on historic tools and resources to determine the presence of a tributary or adjacent wetland at the time of ditch construction may prove time consuming when the information is not easily accessible and problematic when sufficient information is not available to make an accurate determination.
- NCDEQ requests clarification on what conditions of the tributary definition must be met for a ditch to be WOTUS. For example, the tributary definitions states "The term tributary means a river, stream, or similar naturally occurring surface water channel…" A ditch is, by definition, not a "naturally occurring surface water channel"; it is "an artificial channel used to convey water." For clarity, NCDEQ recommends adding the pertinent requirements from the tributary definition into the ditch definition and removing the reference to meeting the tributary requirements in the ditch language.
- p. 4181-4182 *"The agencies seek comment on the utility and clarity of proposing a separate category of jurisdictional ditches and how the agencies have delineated those ditches that would be 'waters of the United States' and those that would be excluded... whether the agencies should retain the historical treatment of jurisdictional ditches within the definition of 'tributary' and not in a separate category."*

  Ditches have been a point of confusion and discussion. Separation of ditches into a separate category acknowledges these difficulties and allows for them to be referenced in the document more easily.
- p. 4182 *"[T]he agencies seek comment on whether they should add a temporal component to distinguish jurisdictional ditches when evaluating ditches that may have been constructed in tributaries of adjacent wetlands."*

  If the ditch is jurisdictional by the proposed definition and is contributing to TNWs, then the temporal component should not be relevant to the decision. The goal is to prevent pollution of the TNWs.
- p. 4182 *"[T]he agencies solicit comment on the exclusion of all ditches constructed in upland, regardless of flow regime, and whether that is consistent with the plurality and concurring opinions in Rapanos."*

  If a ditch is cut into an upland and is contributing to a TNW as any other tributary, therefore having the same potential to contribute to the level of pollution in that TNW, then activities in that ditch that can impact downstream waters should also be regulated. Further, the Proposed Rule requires a ditch meet other limiting criteria in addition to meeting the flow regime. NCDEQ does not recommend categorically excluding all ditches constructed in uplands, regardless of flow regime.

F. Lakes and Ponds

- NCDEQ requests that the agencies clarify when lakes and ponds with human-controlled outlet structures will be considered jurisdictional. As written, the Proposed Rule could allow operators to manipulate the flow of water from lakes and ponds to sever jurisdiction of the lake or pond and all water upstream. This could detrimentally impact valuable aquatic resources and does not align with the goals of the CWA.
- p. 4184 "*comment on the proposal to establish a distinct jurisdictional category for lakes and ponds and whether this provides additional clarity and regulatory certainty*"

  Given that lakes and ponds have variability in size, locations, flow patterns and rates, surrounding land uses, etc. it seems appropriate to place lakes and ponds as a separate category.
- p. 4184 "*whether a specific definition of lakes and ponds should be provided*"

  NCDEQ does not believe that a definition is necessary. Further, a size-based definition would be inappropriate.
- p. 4184 "*whether more specific parameters should be included for the type of flooding*"

  No flooding periodicity or magnitude is necessary.
- p. 4184 "*whether less than intermittent flow from lakes and ponds to an (a)(1) water in a typical year could be sufficient to extend jurisdiction to such lakes and ponds*"

  It may be important to regulate less than intermittent flow from lakes and ponds to an (a)(1) water in a typical year, especially if seasonal or storm events carry large water contributions downstream.

G. Wetlands

- The wetlands most threatened by these proposed changes (headwater wetlands, Pocosins, wetlands within Carolina Bays, and isolated wetlands) provide many ecosystem services including: groundwater recharge, water quality filtering, flood retention, storm energy abatement, and habitat. North Carolina currently supports the greatest biodiversity of amphibians in the country, in part because of the valuable habitat provided by the state's wetlands.
- Wetlands that will be most impacted in North Carolina will most likely include headwater wetlands (which often have ephemeral connection to intermittent or perennial streams), non-adjacent wetlands with a significant nexus to TNWs, Pocosins, mountain bogs, and Carolina Bays. These wetlands provide water quality filtering, groundwater recharge, and flood retention.
- To be consistent with the plain language definition of adjacent, NCDEQ recommends changing the definition of adjacent back to the pre-2015 definition, which states "the term adjacent means bordering, contiguous, or neighboring." 33

C.F.R. § 328.3. Wetlands separated from other WOTUS by man-made dikes or barriers, natural river berms, beach dunes and the like are "adjacent wetlands." At a minimum, NCDEQ recommends that adjacent wetlands not be excluded from jurisdiction when separated by man-made dikes or barriers, natural berms, beach dunes and the like.

- Requiring abutting or direct surface water connection with at least intermittent or perennial flow fails to recognize wetlands that are physically connected and significantly affect the chemical, physical, or biological integrity of TNWs through subsurface flow.
- NCDEQ requests clarification on wetlands adjacent to incised channels. Can a wetland meet the abutting, inundation or intermittent/perennial flow requirements to be an adjacent wetland, and therefore WOTUS, when adjacent to an incised stream? NCDEQ's position is that a wetland adjacent to an incised channel can still meet the requirements to be adjacent and therefore should be a WOTUS.
- p. 4185 "*Perennial or intermittent flow between a wetland and jurisdictional water may also occur as a result of a wetland overtopping upland or overtopping a dike, barrier, or similar structure and flowing directly into a jurisdictional water.*"

  These overtopping flows are often ephemeral in nature, happening primarily after rain or storm events, when the wetland maximizes its storage capacity and releases the water. If these wetlands are not jurisdictional, and therefore at risk for removal, the filtering and water storage capacity of the wetlands is also at risk, and any polluted water would potentially travel directly into the downstream waters.
- p. 4186 "*In other words, wetlands separated from otherwise jurisdictional waters by upland or by dikes, barriers, or other similar structures are not adjacent simply because a surface water connection between the two is possible or if, for example, wetlands 'are connected to the navigable water by flooding, on average, once every 100 years' or by directional sheet flow during an individual storm event.*"

  There are many instances where dredge spoil was placed on the stream bank edge creating a barrier between the stream and the abutting wetland. A manmade change to a stream or wetland should not defederalize that feature if it is still ultimately conveying intermittent or perennial flow downstream and is physically connected via subsurface or groundwater flow.
- p. 4186 "*Ephemeral flow or ephemeral pooling occurring only in direct response to precipitation and connecting a wetland to a jurisdictional water does not constitute a direct hydrologic surface connection according to the proposal.*"

  This phrasing acknowledges that these wetlands are connected to a jurisdictional water after the rain events, allowing for the transfer of any pollutants already in or flowing into the system to be directly transported into the jurisdictional water. Removing jurisdiction of these wetlands removes the water storage and filtering capabilities of these features, allowing the water to have direct access to the jurisdictional waters.

- p. 4188 "*In addition, a jurisdictional wetland divided by an artificial feature, such as a road, would be treated as a single wetland and remain jurisdictional unless there is no direct hydrologic surface connection during a typical year between the wetlands present on either side of the feature.*"

  Previous road construction projects were permitted based on upstream wetlands remaining jurisdictional. The proposed rule would increase the impacts caused by past projects. Likewise, future projects will be assessed greater acres of impact when having to claim the loss of the portion of the wetland upstream from the feature. Road overtopping in this case will likely be ephemeral in nature but would still provide the same level of pollutant contribution to the downstream jurisdictional waters. On p. 4174, subterranean rivers are allowed as subsurface connection points between jurisdictional tributaries but are not included equally in wetland jurisdictional consideration.

- p. 4189 "*whether including in the regulatory text that areas must satisfy all three wetland delineation criteria under normal circumstances to quality as wetland would provide additional clarity.*"

  NCDEQ believes the current definition of wetlands is clear and sufficient.

- p. 4189 *"other potential interpretations of adjacency, such as including a distance limit to establish the boundaries between Federal and State waters... For example, ... using distance from another jurisdictional water as the basis for asserting jurisdiction over wetlands, even if those wetlands do not abut or have a direct hydrologic surface connection to such waters in a typical year... [Or,] establishing a jurisdictional cut-off in a contiguous wetland for administrative purposes rather than extending jurisdiction to the outer limits of the wetland where all three wetland characteristics are no longer satisfied."*

  Using distance from another jurisdictional water for waters that do not abut or have direct surface hydrologic connection could provide some predictability to landowners with wetlands that are physically connected and significantly affect the chemical, physical and biological integrity of TNWs through subsurface flow. However, if distance limits are added to the Proposed Rule the agencies should account for regional differences.

  Establishing a jurisdictional cut-off within a contiguous wetland solely for administrative ease would be arbitrary and capricious. It would not be based on science or the law and would actively frustrate the goals of the Clean Water Act.

- p. 4189 "*whether the definition of 'adjacent wetlands' should not include reference to dikes, barriers, and similar structures and instead those terms should be included in the definition of upland*"

Dikes, barriers and similar structures should remain as part of the language, and they should not remove an adjacent wetland from jurisdiction if they are located between the wetland and the stream, ditch, or TNW.

- *p. 4189 "whereby wetlands that are separated from another jurisdictional water by upland or a dike, barrier or other similar structure would not be jurisdictional even if they have a direct hydrologic surface connection in a typical year to an otherwise jurisdictional water."*

  A direct hydrologic surface connection transports water, and any constituent pollutants, from the wetland to the jurisdictional water. Removing the wetland could provide a direct path of pollutants to the jurisdictional water. NCDEQ strongly opposes any further cabining of an already overly constrained definition.

- p. 4189 "*whether it is appropriate to describe a 'direct hydrologic surface connection' as occurring due to inundation from an (a)(1)-(5) water or via perennial or intermittent flow between a wetland and an (a)(1)-(5) water in a typical year*"

  Sheet flow, ephemeral flow and subsurface flow from wetlands to jurisdictional waters each constitutes a direct hydrologic connection. The agencies should incorporate all of these direct hydrologic connections in the adjacency definition.

H. Waters and Features that are not Waters of the US

- p. 4195 "*whether they should enumerate additional specific exclusions for the purposes of clarity*"

  NCDEQ recommends keeping paragraph (b) for features not explicitly addressed in paragraph (a). NCDEQ recommends removing items already addressed in paragraph (a) and the catch-all statement in (b)(1), including (b)(4), (b)(7), and (b)(8). NCDEQ also recommends modifying (b)(3) to state "~~Ephemeral features and d~~Diffuse stormwater run-off, including directional sheet flow over upland;"

- p. 4195 "*whether certain ditches excavated in upland but with perennial or intermittent flow to an (a)(1) through (5) water should be treated as a jurisdictional tributary and why, and if so, what flow regime would apply*"

  If a ditch is cut into an upland and is contributing to a TNW as any other tributary, therefore having the same potential to contribute to the level of pollution in that TNW, then activities in that ditch that can impact downstream waters should also be regulated. NCDEQ recommends adding ditches used by anadromous fish, including those excavated in upland, as another type of ditch that is jurisdictional under WOTUS.

- p. 4195 "*whether the exclusion for ditches should instead focus on particular ditch use*"

  Excluding ditches based on use is problematic as every use cannot be determined and classified as in or out. Further, the focus of the CWA is transport of

pollutants and the intent of the ditch's construction does not influence the transport of pollutants to a jurisdictional water.

- p. 4195 "*the agencies intend for the exclusion in paragraph (b)(11) to apply only to lawfully constructed waste treatment systems. The agencies solicit comment on whether greater clarity is needed by including in the rule text that the exclusion only applies to 'lawfully constructed waste treatment systems'*"

  The agencies' intent is not clear in the proposed rule language. NCDEQ recommends modifying (b)(11) as suggested by the agencies to read "lawfully constructed waste treatment systems".

IV. State, Tribal and Federal Agency Datasets of "Waters of the United States"

- p. 4198 *"Stakeholders also indicated that maps could increase certainty and transparency regarding the data and methods used to determine which waters are jurisdictional and which waters are not."*

  The current maps are not accurate and reliable enough to confidently predict nationwide or statewide ephemeral/intermittent points and/or wetland boundaries. An enormous amount of staff time and money would be necessary to create a potential remote sensing technology, ground truth the results of any mapping products, and maintain and update the map as landscape features constantly change. Any jurisdictional determinations would still require a site visit to make the final determinations.

- p. 4199 The proposal reads as though jurisdictional determinations would be made from a computer in the office. While it is possible to predict where a stream or wetland is likely to be found, given the inherent variability of nature, it is not possible to make accurate determinations remotely for all tributaries, lakes and ponds, impoundments, ditches, and wetlands. Remote sensing maps could be created on a smaller geographic scale to predict the likelihood of a jurisdictional feature being present, but should not be used for making a final determination.