

The American Fisheries Society • American Institute of Biological Sciences • Association for the Sciences of Limnology and Oceanography • Coastal and Estuarine Research Federation • Ecological Society of America • Freshwater Mollusk Conservation Society • International Association for Great Lakes Research • North American Lake Management Society • Phycological Society of America • Society for Ecological Restoration • Society for Freshwater Science • Society of Wetland Scientists

November 20, 2017

The Honorable Scott Pruitt
Administrator
U.S. Environmental Protection Agency
Office of Policy Regulatory Reform
Mail Code 1803A
1200 Pennsylvania Ave NW
Washington, DC 20460

The Honorable Ryan A. Fisher
Acting Assistant Secretary of the Army for Civil Works
Office of the Assistant Secretary of the Army for Civil Works
Department of the Army
104 Army Pentagon
Washington, DC 20310-0104

Re: Docket ID No. EPA-HQ-OW-2017-0480; Proposed Rule: Definition of “Waters of the United States: Pre-proposal Outreach Comments”

Dear Administrator Pruitt and Mr. Fisher:

On behalf of our nearly 200,000 members, the undersigned science societies respectfully submit the following comments in response to your solicitation regarding the proposed rule, Definition of “Waters of the United States” - Pre-proposal Outreach Comments, EPA-HQ-OW-2017-0480, published in the Federal Register on August 28, 2017. The undersigned societies are science-based organizations with diverse areas of expertise in the ecological, hydrologic and biological sciences. Our members work in the private sector, academia, and various tribal, state and federal agencies. We support wetland and aquatic resource research, education, restoration and sustainable management, and foster sound science. Thus, we promote science-based policy-making for the benefit of aquatic resources and the goods and services these resources supply in support of the health and economy of local communities.

We fully support the definition of “Waters of the United States” (WOTUS) in the 2015 Clean Water Rule: Definition of Waters of the United States as promulgated by the agencies in 80 FR 37054, June 29, 2015 (2015 CWR). **We strongly oppose the repeal of the 2015 CWR rule and vehemently object to a definition of WOTUS based on Justice Antonin Scalia’s plurality opinion in *Rapanos v. United States*, 547 U.S. 715 (2006).** In *Rapanos*, Justice Scalia asserted that the “only plausible interpretation [of WOTUS] includes 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’ [and] *only* those wetlands with a continuous surface connection to bodies

that are 'waters of the United States' in their own right, so that there is no clear demarcation between 'waters' and wetlands, are 'adjacent to' such waters and covered by the Act." (Justice Scalia Opinion).

The proposed redefinition of WOTUS based on the Justice Scalia Opinion would make it impossible to achieve the objective of the Clean Water Act (CWA), which is, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C. 1251, Sec 101(a)). Such a definition would exclude numerous waters that affect the chemical, physical and biological integrity of primary waters (traditional navigable waters, interstate waters, and the territorial sea). The proposed redefinition based on the Justice Scalia Opinion reflects a fundamental misunderstanding of the integral role that headwaters, tributaries, and wetlands play in the chemical, physical and biological integrity of the downstream primary waters. Such a definition appears to ignore the functional relationship between headwaters, tributaries, wetlands, and the downstream primary waters that they feed and support, as well as the functional objective of the CWA itself. Excluding the hydrological and ecological function of wetlands and waters that support primary waters poses a significant threat to the integrity and security of our drinking water, public health, fisheries, and wildlife habitat, while significantly increasing the risks and costs associated with flood and storm damage. Limiting jurisdiction of the CWA to tributaries and wetlands that are "relatively permanent" and/or have a "continuous surface connection" to primary waters is unreasonable in light of the scientific literature and current knowledge. **This definition is simply unsupported by the peer-reviewed science.**

Further, the CWA states, "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985." Should headwaters, wetlands and tributaries with a significant nexus, but not necessarily a continuous surface connection, to primary waters lose protection, pollutant levels will increase and will, more often than not, flow or seep into the downstream/downgradient primary waters. In this provision, **the CWA requires that the "discharge" of pollutants be eliminated, and does not distinguish among the various points at which the pollutants may potentially enter the source waters, as: a) flow from a primary water, b) flow from an intermittent, headwater, or tributary water, or c) unchanneled seepage from a wetland.** In any of these situations, the result is potentially wide-spread pollution of navigable waters, which violates the Clean Water Act.

Headwaters, tributaries, and wetlands with a significant nexus to primary waters transfer the nutrients, pollutants, oxygen, minerals, sediments, fish and other biota that they are carrying to the downstream/downgradient primary waters in much the same way that capillaries, lesser blood vessels, and peripheral organs contribute to the functioning of the heart and brain. Maintaining the chemical, physical and biological integrity of organs receiving blood flow from peripheral regions of the body is not possible if these peripheral features are significantly compromised or polluted. In both cases, the overall health of the human body or the primary water body is damaged or lost if the peripheral features are unprotected from significant damage or pollution.

We are extremely concerned about the implications of a definition of WOTUS based on a Justice Scalia Opinion, because this would likely exclude most wetlands that are currently regulated, as well as those with a significant nexus to primary waters that would be regulated under the 2015 CWR. Such a definition relies on an artificial visual characteristic that is unrelated to the functional connection between waters and wetlands with a "significant nexus" (i.e., functional connection) to primary waters, and is equally unrelated to achievement of the objectives of the CWA. Countless headwater streams, tributaries and millions of prairie pothole and vernal pool wetlands across the country would be unprotected. Many, if not most, forested, shrub/scrub, peatland and marsh wetlands are not continuously connected to relatively permanent or continuously flowing bodies of water and

would not be protected. **Even some iconic waters and wetlands would be excluded from jurisdiction under such a definition including:**

- the iconic Big Cypress Swamp in the Western Everglades,
Parts of:
 - the Okefenokee Swamp in Georgia and Florida,
 - wetland permafrost areas in Alaska,
 - the patterned peatlands in Minnesota such as those in the Lake Agassiz Lowlands,
 - the Atchafalaya Swamp in Louisiana, and
 - the Hockomock Swamp in Massachusetts.

The economic and public health and safety value of the ecosystem services provided by these waters and wetlands cannot be overestimated. Protection of the integrity and function of wetlands and headwaters greatly reduces both risks and costs.

In states that have no state wetland protection laws, these “waters and wetlands that safeguard the chemical, physical and biological integrity of the Nation’s waters” would be unprotected at both the federal and state levels. **Before implementing any new WOTUS definition, we urge the agencies to fully evaluate the impact of such a change at the state level, and the capacity and willingness of states to take on responsibility for ensuring that the chemical, physical and biological integrity of the Nation’s waters is not compromised¹.**

The 2015 CWR was supported by peer-reviewed science and evidentiary analysis, and was subject to rigorous independent peer review and a robust public comment process. We urge you to conduct a similar process for any new definition of WOTUS. Additionally, **any new definition of WOTUS should be consistent with, and supported by, the scientific evidence**, documented in the EPA’s *Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence* report², which underwent external peer review by the EPA Science Advisory Board, and incorporates results from over 1,200 peer-reviewed scientific publications. Any new WOTUS definition should also be consistent with scientific evidence presented in the Brief of the *Amici Curiae* in Support of Respondents and in Support of Upholding the Clean Water Rule³, filed with the U.S. Court of Appeals for the Sixth Circuit, as well as numerous peer-reviewed studies (e.g., Golden et al. 2017)⁴, agency experience and U.S. Supreme Court precedent. **Any new definition of WOTUS should be supported by a complete and scientifically valid economic analysis**, like the one conducted for the 2015 CWR, and as supported by the numerous economic studies referenced at the end of this letter⁵.

Wetlands sustain essential habitat for fish, wildlife and waterfowl to feed, breed, nest, spawn, and rear their young. The areas comprising our nation’s wetlands have been reduced by over 50% over the past 200 years and now cover a small portion of our landscapes (<6% of the land area in the lower 48 states), but they play a disproportionately significant role in protecting our nation’s waters.

Wetlands, headwater streams and tributaries provide vital services that promote human health and safety, and support American businesses. These essential components of our hydrologic networks improve water quality in our streams, lakes, and groundwater by naturally cleansing surface waters, including urban, mining, timber harvesting and agricultural runoff; they also provide stored water during drought, and absorb stormwater runoff and floodwaters, reducing disaster recovery costs. A 2016 study (Narayan et al. 2016)⁶ found that coastal wetlands prevented \$625 million in property damages during Hurricane Sandy, and that coastal wetlands reduced annual property damages in Ocean County, New

Jersey by nearly 20%. Many of the stream and wetland resources that provide these economic benefits would not be protected under the definition of WOTUS in the Judge Scalia Opinion.

Should the agencies decide to move forward in developing a new definition of WOTUS, we urge you to include headwaters, tributaries and wetlands with a significant nexus to primary waters (i.e., those covered by the 2015 CWR) even if they do not exhibit a continuous surface connection to primary waters. The protection of water quality, water supply, and aquatic ecosystem health, the prevention of storm, flood, property, and infrastructure damage, and the protection of the chemical, physical, and biological integrity of WOTUS will be jeopardized without the protection afforded by headwaters, tributaries, wetlands (including some isolated wetlands), and adjacent waters as outlined in the 2015 CWR. A definition of WOTUS that provides more limited protection of wetland and aquatic resources than those identified in the 2015 CWR would lead to incomplete achievement of the CWA mandate, as noted in this comment letter, with costly and significant negative consequences for American citizens, businesses, and communities, as they experience deteriorated water quality, more limited water supplies, more severe flood and storm damage to properties and infrastructure, reduced fisheries, reduced recreational activities supporting American businesses, and degraded ecosystem and wildlife habitat conditions. Compensation for losses as well as any restoration of these ecosystem services will result in significant financial costs to our citizens and our nation, which we can ill afford.

Considering the critical functions of our nation's wetlands, headwater streams and tributaries in providing a broad suite of ecosystem services to society and the costs associated with replacing those ecosystem services, as well as the far-reaching implications for fish, wildlife, and their habitat from redefining WOTUS based on the Justice Scalia Opinion or similar narrow definition, we urge the EPA and the Army Corps of Engineers to either **reaffirm the existing 2015 CWR, or to develop a WOTUS definition and associated revised rule that is as scientifically, legally, economically and ecologically robust as the 2015 CWR** so that the concerns and interests of American citizens, businesses, communities, and the approximately 200,000 members of our societies are addressed.

Sincerely,



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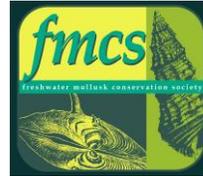
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REFERENCES

1. https://www.aswm.org/pdf/lib/state_summaries/status_and_trends_report_on_state_wetland_programs_in_the_united_states_102015.pdf
2. U.S. Environmental Protection Agency (USEPA). 2013. Connectivity of streams and wetlands to downstream waters: A review and synthesis of the scientific evidence. US Environmental Protection Agency, Washington, D.C. EPA/600/R-11/098B.
3. Brief of the *Amici Curiae* in support of respondents and in support of upholding the Clean Water Rule (2017) filed with the U.S. Court of Appeals for the Sixth Circuit, http://www.stetson.edu/law/international/biodiversity/media/amici_curiae_brief_of_wetland_and_water%20_scientists-01-20-17_filed.pdf
4. Golden HE, Creed IF, Ali G, Basu N, Neff BP, Rains MC, McLaughlin DI, Alexander LC, Ameli AA, Christensen JR, Evenson GR, Jones CN, Lane CR, Lange M (2017) Integrating geographically

isolated wetlands into land management decisions. *Front. Ecol Environ.* 15(6): 319-327, doi 10.1002/fee/1504

5. ECONOMIC VALUATION STUDIES (in addition to Narayan et al. (2016))

- a. Awondo SN, Egan KJ, Dwyer DF, (2011) Increasing beach recreation benefits by using wetlands to reduce contamination. *Marine Resource Economics* 26(1): 1-15. <https://doi.org/10.5950/0738-1360-26.1.1>
- b. Barbier EB (2015) Valuing the storm protection service of estuarine and coastal ecosystems. *Ecosystem Services* 11: 32-38. <http://dx.doi.org/10.1016/j.ecoser.2014.06.010>
- c. Barbier EB, Georgiou IY, Enchelmeyer B, Reed DJ (2013) The value of wetlands in protecting southeast Louisiana from hurricane storm surges. *PLoS ONE* 8(3): e58715. Doi:10.1371/journal.pone.0058715
- d. BenDor, T, Lester, TW, Livengood, A, Davis A, Yonavjak L (2015) Estimating the size and impact of the ecological restoration economy. *PLoS ONE* 10(6): e0128339. Doi:10.1371/journal.pone.0128339
- e. Bergstrom JC, Loomis JB (2017) Economic valuation of river restoration: An analysis of the valuation literature and its uses in decision-making. *Water Resources and Economics* 17: 9-19. <https://doi.org/10.1016/j.wre.2016.12.001>
- f. Brander LM, Florax GM, Vermaat JE (2006) The empirics of wetland valuation: a comprehensive summary and a meta-analysis of the literature. *Environ. Resour. Econ.* 33(2): 233-250, Doi: 10.1007/s10640-005-3104-4
- g. Brander L (2013) Economic valuation of regulating services provided by wetlands in agricultural landscapes: A meta-analysis. *Ecological Engineering* 56: 89-96. <http://dx.doi.org/10.1016/j.ecoleng.2012.12.104>
- h. Costanza R, de Groot R, Sutton S, van der Ploeg S, Anderson I, Kubiszewski S, Farber S, Turner RK (2014) Changes in the global value of ecosystem services. *Global Environmental Change* 26:152-158.
- i. Emerton L (2016) Economic valuation of wetlands: Total economic value. Springer Science+Business Media Dordrecht CM Finlayson et al. (eds) *The Wetland Book*. Doi 10.1007/978-94-007-6172-8_301-1
- j. Ghermandi A, van den Bergh CJM, Brander LM, Nunes PALD (2008) The economic value of wetland conservation and creation: A meta-analysis, *Nota di lavoro//Fondazione Eni Enrico Mattei: Sustainable development* 79.2008. <http://hdl.handle.net/10419/53239>
- k. Ghermandi A, van der Bergh CJM, Brander LM, de Groot HLF, Nunes PALD (2010) Value of natural and human-made wetlands: A meta-analysis. *Water Resources Research* 46: W12516. Doi:10.1029/2010WR009071

- l. Hanemann M, Loomis, J, Kanninen B, (1991) Statistical efficiency of double-bounded dichotomous choice contingent valuation. *American Journal of Agricultural Economics* 73(4): 1255-1263.
- m. Hey DL, Philippi NS (1995) Flood reduction through wetland restoration: The upper Mississippi River basin as a case history. *Restoration Ecology* 3(1): 4-17.
- n. Interis M, Retrolia DR (2016) Location, location, habitat: How the value ecosystem services varies across location and by habitat. *Land Economics* 92 2 292-307. <http://muse.jhu.edu/journals/ide/summary/v092/92.2.interis.html>
- o. Lalika MCS, Meire P, Ngaga YM, Goddy JS (2017) Willingness to pay for watershed conservation: Are we applying the right paradigm? *Ecohydrology & Hydrobiology* 17(1): 33-45. <https://doi.org/10.1016/j.ecohyd.2016.12.004>
- p. Mitsch WJ, Bernal B, Hernandez ME (2015) Ecosystem services of wetlands. *International Journal of Biodiversity Science, Ecosystem Services & Management* 11(1): 1-4. <http://dx.doi.org/10.1080/21513732.2015.1006250>
- q. Mueller JM, (2013) Estimating willingness to pay for watershed restoration in Flagstaff, Arizona using dichotomous-choice contingent valuation. *Forestry: An International Journal of Forest Research* 87(2): 327-333. <https://doi.org/10.1093/forestry/cpt035>
- r. Mueller JM, Swaffer W, Nielsen EA, Springer AE, Masek Lopez S (2013) Estimating the value of watershed services following forest restoration. *Water Resources Research* 4(4): 1773-1781. Doi:10.1002/wrer.20163
- s. Murray B, Jenkins A, Kramer R, Faulkner SP (2009) Valuing ecosystem services from wetlands restoration in the Mississippi alluvial valley. The Nichols Institute for Environmental Policy Solutions, Duke University. NI R 09-02.
- t. Petrolia, DR, Interis MG, Hwang J (2014) America's Wetland? A national survey of willingness to pay for restoration of Louisiana's coastal wetlands. *Marine Resources Economics* 29(1). <http://dx.doi.org/10.1086/676289>
- u. Petrolia DR, Kim T (2009) What are barrier islands worth? Estimates of willingness to pay for restoration. *Marine Resource Economics*, 24 131-146.
- v. Petrolia DR, Kim T (2011) Preventing land loss in coastal Louisiana: Estimates of WTP and WTA. *Journal of Environmental Management* 92: 859-865. Doi.10.1016/j.jenvman.2010.10.040
- w. Petrolia DR, Moore RG, Kim T (2011) Preferences for timing of wetland loss Prevention in Louisiana. *Wetlands* 31:295-307. DOI 10.1007/s13157-011-0150-2
- x. Watson, KB, Ricketts, T, Galford, G, Polasky S, O'Neil-Dunne, J (2016) Quantifying flood mitigation services: The economic value of Otter Creek wetlands and floodplains to Middlebury, VT. *Ecological Economics* 130: 16-24. <http://dx.doi.org/10.1016/j.ecolecon.2016.05.015>.

- y. Whitehead JC, Groothuis PA (2005) The Economic Values of Saginaw Bay Coastal Marshes. Southwick Associates, Inc. Florida.
 - z. Whitehead JC, Groothuis PA, Southwick R, Foster-Turley P (2009) Measuring the economic benefits of Saginaw Bay coastal marsh with revealed and stated preference methods. *Journal of Great Lakes Research* 35(3): 430-437.
<https://doi.org/10.1016/j.jglr.2009.03.005>
 - aa. Woodward RT, Wui Y (2000) The economic value of wetland services: a meta-analysis. *Ecological Economics* 37: 257-270.
6. Narayan, S, Beck, MW, Wilson, P, Thomas, C, Guerrero, A, Shepard, C, Reguero, BG, Franco, G, Ingram, CJ, Trespalacios, D (2016) Coastal wetlands and flood damage reduction: using risk industry-based models to assess natural defenses in the northeastern USA. Lloyd's Tercentenary Research Foundation, London.