UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C. 20460

OFFICE OF THE ADMINISTRATOR
SCIENCE ADVISORY BOARD

EPA-SAB-20-xxx

The Honorable Andrew R. Wheeler
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Subject: Commentary on the Proposed Rule Defining the Scope of Waters Federally Regulated Under the Clean Water Act

Dear Administrator Wheeler:

Establishing a sound, consistent, scientifically supported and clear definition of "waters of the United States" (WOTUS) is a critical component of implementing the United States Federal Water Pollution Control Act (1972), more commonly known as the Clean Water Act (CWA). The Act itself does not provide such a definition. Achievement of the Act's overall objective "to restore and maintain the chemical, physical and biological integrity of the Nation's waters" requires a clear definition of the geographic and hydrologic scope of these waters. On February 14, 2019, the EPA and the Department of the Army, Corps of Engineers published a new proposed rule defining the scope of waters federally regulated under the Clean Water Act (84 FR 4154)[1]. At the EPA Science Advisory Board (SAB) meeting on June 5-6, 2019, the SAB discussed the scientific and technical underpinnings of the proposed WOTUS rule. The Board concluded that the proposed WOTUS rule does not incorporate best available science and as such we find that a scientific basis for the proposed Rule, and its consistency with the objectives of the Clean Water Act, is lacking. The SAB voted to provide a commentary to the Agency outlining the nature of this inconsistency.

Process Used by the SAB to Develop This Commentary

The SAB established a WOTUS Work Group to develop an initial draft of this commentary. The draft commentary was then reviewed and approved by the full SAB at a public teleconference held on [insert date]. The SAB WOTUS Work Group consisted of Drs. Alison Cullen (chair), Bob Blanz, John Guckenheimer, Michael Honeycutt, Clyde Martin, Robert Merritt, Robert Puls,

[1] Available at: https://www.govinfo.gov/content/pkg/FR-2019-02-14/pdf/2019-00791.pdf

and Tara Sabo-Attwood. The SAB Work Group considered the proposed rule's content, supporting materials and documents, a previous fact-finding teleconference with EPA, comments from EPA staff at the June 5-6, 2019 SAB meeting, and the deliberation of the entire chartered SAB at this meeting in developing the draft commentary.

Commentary on Revised Definition of "Waters of the United States" (84 FR 4154)

The SAB finds that the proposed revised definition of WOTUS (84 FR 4154) (hereafter, the proposed Rule) decreases protection for our Nation's waters and does not provide a scientific basis in support of its consistency with the objective of restoring and maintaining "the chemical, physical and biological integrity" of these waters. At the June 5-6, 2019 SAB meeting, the Board offered to support EPA in the application of more recent scientific advances to increase clarity and consistency for CWA needs. EPA representatives responded that the agency has chosen to interpret the CWA and subsequent case law as constraining them to limiting the definition of WOTUS to the language of the proposed Rule. The SAB acts under no such constraint in its advisory capacity and is in fact obligated by statute to communicate the best available science on this topic. The following key elements amplify this finding.

- The proposed Rule does not fully incorporate the body of science on connectivity of waters reviewed previously by the SAB and found to represent a scientific justification for including functional connectivity in rule making: EPA's 2015 Connectivity Report (U.S. EPA 2015)[2], Rains (2011)[3], and Rains et al. (2016)[4]. The EPA's 2015 Connectivity Report emphasizes that functional connectivity is more than a matter of surface geography. The report illustrates that a systems approach is imperative when defining the connectivity of waters, and that functional relationships must be the basis of determining adjacency. The proposed Rule offers no comparable body of peer reviewed evidence, and no scientific justification for disregarding the connectivity of waters accepted by current hydrological science.

- In the proposed Rule the EPA and Department of the Army specifically requested comment on "if and under what circumstances subsurface water connections between wetlands and jurisdictional waters could be used to determine adjacency." The SAB submits that there is a solid body of scientific evidence regarding the existence of these connections documented in EPA's 2015 Connectivity Report, and reviewed by the SAB, which provide a basis for answering this request for comment.

- There is no scientific justification for excluding ground water from WOTUS if spring-fed creeks are considered to be jurisdictional. The proposed Rule neglects the connectivity of ground water to wetlands and adjacent major bodies of water with no acknowledgement of watershed systems and processes discussed in EPA's 2015 Connectivity Report. The

[2]U.S. EPA. 2015. *Connectivity of streams and wetlands to downstream waters: a review and synthesis of the scientific evidence technical report*. EPA/600/R-14/475F. U.S. Environmental Protection Agency, Washington, D.C.
[3] Rains, M.C. 2011. Water Sources and Hydrodynamics of Closed-Basin Depressions, Cook Inlet Region, Alaska. *Wetlands* 31:377-387.
[4] Rains, M.C., S.G. Leibowitz, M. J. Cohen, I.F. Creed, H.E. Golden, J.W. Jawitz, P. Kalla, C.R. Lane, M.W. Lang, and D.L. McLaughlin. 2016. Geographically isolated wetlands are part of the hydrological landscape. *Hydrological Processes* 30:153-160.

SAB's previous review found a scientific justification for the conclusion that chemical or biological contamination of ground water may lead to contamination of functionally connected surface water. Ground water may also contribute to intermittent flow of jurisdictional tributaries. Further, shallow ground water may directly connect wetlands to adjacent major bodies of water. Thus, the scientific importance of ground water connections supports the inclusion of ground waters in the jurisdictional definition. These scientific considerations also pertain to those bodies of water that only occasionally flow, such as the arroyos of the Southwest United States.

- The proposed Rule excludes irrigation canals from the definition of WOTUS. Biological and chemical contamination of large-scale irrigation canals presents a documented and serious risk to public health and safety (Allende and Monaghan 2015)[5]. The presence of *E. coli* in leafy vegetables is often traceable to irrigation water contaminated by animals in feed lots or pastures adjacent to the canals. Water associated with confined animal feeding operations has also been shown to contain chemical contaminants, such as steroids, that are associated with public health concerns (Allende and Monaghan 2015; Bartelt-Hunt et al. 2011; Gall et al. 2014).[6,7,8]

- The definition of jurisdictional waters in the proposed Rule excludes adjacent wetlands that do not abut or have a direct hydrologic surface connection to otherwise jurisdictional waters. This definition is inconsistent with previous SAB review which justified scientifically the inclusion of these wetlands (U.S. EPA Science Advisory Board 2014)[9]. No new body of peer reviewed scientific evidence has been presented to support an alternative conclusion.

- The proposed Rule does not present a scientific basis for adopting a surface water based definition of Waters of the U.S. The proposed definition is inconsistent with the body of science previously reviewed by the SAB, while no new science has been presented. Thus the approach neither rests upon science, nor provides long term clarity.

In summary, current scientific understanding of the connectivity of surface and ground water, which has been reviewed by the SAB previously, is not reflected in the proposed Rule. Specifically, the proposed definition of WOTUS excludes groundwater, ephemeral streams, and wetlands which connect to navigable waters below the surface. The proposed Rule does not present new science to support this definition, thus the SAB finds that the proposed Rule lacks a

[5] Allende, A. and J. Monaghan. 2015. Irrigation Water Quality for Leafy Crops: A Perspective of Risks and Potential Solutions. *International Journal of Environmental Research and Public Health*, 2015 Jul. 12(7): 7457-7477.
[6] Ibid.
[7] Bartelt-Hunt, S., D.D. Snow, T. Damon-Powel, and D. Miesbach. 2010. Occurrence of steroid hormones and antibiotics in shallow groundwater impacted by livestock waste control facilities. Journal of Contaminant Hydrology 123(3-4):94-103. doi: 10.1016/j.jconhyd.2010.12.010. Epub 2011 Jan 4.
[8] Gall, H.E., S.A. Sassman, B. Jenkinson, L.S. Lee, and C.T. Jafvert. 2015. Comparison of export dynamics of nutrients and animal-borne estrogens from a tile-drained Midwestern agroecosystem. Water Research 72:162-73. doi: 10.1016/j.watres.2014.08.041. Epub 2014 Sep 6.
[9] U.S. EPA Science Advisory Board. 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."* EPA-SAB-14-007. U.S. EPA Science Advisory Board, Washington, D.C.

scientific justification, while potentially introducing new risks to human and environmental health.

Dr. Michael Honeycutt, Chair

Science Advisory Board

Enclosure

1) Roster, EPA Science Advisory Board

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