

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

CONSERVATION LAW FOUNDATION, et al.,)	
)	
Plaintiffs,)	
)	Case No. 20-cv-10820-DPW
v.)	
)	Leave to file granted on
)	December 17, 2020
U.S. ENVIRONMENTAL PROTECTION)	
AGENCY, et al.,)	
)	
Defendants.)	

**BRIEF OF SCIENTIFIC SOCIETIES AS *AMICI CURIAE* IN SUPPORT OF
PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT**

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INTEREST OF THE *AMICI CURIAE*¹

*Amici curiae*² are nine national and international scientific societies, all actively involved in research, education, and the conservation and restoration of aquatic ecosystems and resources in the United States. *Amici* have an interest in this case because of its impact on the integrity of those ecosystems, their biodiversity, and their resources. As scientific societies, *amici* support the use of the best available scientific information in making decisions on the use and management of aquatic ecosystems and resources.

Justice Breyer observed that “[t]he law must seek decisions that fall within the boundaries of scientifically sound knowledge.” Fed. Judicial Ctr. & Nat’l Research Council, *Reference Manual on Scientific Evidence* 4 (3d ed. 2011). This brief discusses the importance of science in Clean Water Act implementation. It explains that scientific tools and data were available to estimate the impact of The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. 22,250 (Apr. 21, 2020) [hereinafter “NWPR”], and it notes how the U.S. Environmental Protection Agency (“EPA”) and the U.S. Army Corps of Engineers (collectively, the “Agencies”) failed to consider the extent to which their actions would reduce Clean Water Act jurisdiction. The Clean Water Act’s objective can only be achieved by properly considering science when deciding which waters the Clean Water Act protects.

¹ Plaintiffs consent and Defendants are not opposed to the filing of this brief. *Amici curiae* state that no counsel for a party authored this brief in whole or in part, that no party or party’s counsel made a monetary contribution intended to fund the preparation or submission of this brief, and that no person—other than *amici curiae*, their members, or their counsel—made a monetary contribution intended to fund the preparation or submission of this brief.

² *Amici curiae* are American Fisheries Society, Association for the Sciences of Limnology and Oceanography, Coastal and Estuarine Research Federation, International Association for Great Lakes Research, North American Lake Management Society, Phycological Society of America, Society for Ecological Restoration, Society for Freshwater Science, and Society of Wetland Scientists. Descriptions of the scientific societies are provided in Appendix A to this brief.

INTRODUCTION

In promulgating the NWPR, the Agencies removed Clean Water Act protections from a large percentage of the Nation’s waters while repeatedly ignoring, undervaluing, or failing to accurately assess the impact the rule would have on water quality. From a scientific perspective, while the Agencies attempt to claim that they sufficiently considered science when promulgating the rule, the EPA’s own Scientific Advisory Board determined otherwise. The Scientific Advisory Board observed that the Agencies did “not provide a scientific basis” and did “not incorporate best available science” in proposing the NWPR. Letter from Dr. Michael Honeycutt to Andrew R. Wheeler 1 (Feb. 27, 2020), [https://yosemite.epa.gov/sab/sabproduct.nsf/WebBOARD/729C61F75763B8878525851F00632D1C/\\$File/EPA-SAB-20-002+.pdf](https://yosemite.epa.gov/sab/sabproduct.nsf/WebBOARD/729C61F75763B8878525851F00632D1C/$File/EPA-SAB-20-002+.pdf). Accordingly, the Scientific Advisory Board found that the Agencies failed to consider the negative impacts of the NWPR, “potentially introducing new risks to human and environmental health.” *Id.* at 4. The NWPR’s approach to science stands in stark contrast to the rule the Agencies previously promulgated in 2015, the Clean Water Rule. Clean Water Rule: Definition of “Waters of the United States,” 80 Fed. Reg. 37,054 (June 29, 2015) [hereinafter “Clean Water Rule”].

In developing the Clean Water Rule, the Agencies reviewed and relied on the “best available peer-reviewed science.” *See id.* at 37,056–57. The Agencies compiled a considerable scientific record that supported the approach taken in the Clean Water Rule, and as part of that rulemaking, the report prepared by EPA’s Office of Research and Development, *Connectivity of Streams & Wetlands to Downstream Waters: A Review & Synthesis of the Scientific Evidence* (Jan. 2015) [hereinafter “Connectivity Report”], considered over 1,200 peer-reviewed scientific publications on the connections between streams, wetlands, and downstream waters. *Id.* at 37,057, 37,062. The draft Connectivity Report was peer reviewed by an expert panel created by

EPA’s Science Advisory Board. *Id.* The Science Advisory Board was highly supportive of the Report’s conclusions. *Id.* at 37,062.

The Agencies under the Trump Administration took several steps to undo the scientifically-sound Clean Water Rule. In 2018, the Agencies attempted to suspend the Clean Water Rule for two years. Definition of “Waters of the United States”—Addition of an Applicability Date to 2015 Clean Water Rule, 83 Fed. Reg. 5200 (Feb. 6, 2018) [hereinafter “Suspension Rule”]. The Suspension Rule was vacated nationwide because, in part, the Agencies refused to “consider any scientific studies,” including the Connectivity Report. *S.C. Coastal Conservation League v. Pruitt*, 318 F. Supp. 3d 959, 967 (D.S.C. 2018).

In 2019, the Agencies repealed the Clean Water Rule, reinstituting pre-2015 regulations and guidance. Definition of “Waters of the United States”—Recodification of Pre-Existing Rules, 84 Fed. Reg. 56,626 (Oct. 22, 2019) [hereinafter “Repeal Rule”]. The repeal of the Clean Water Rule, and the extent to which the Agencies did not consider the scientific record, is the subject of current litigation.³

In April 2020, the Agencies promulgated the NWPR. 85 Fed. Reg. 22,250 (Apr. 21, 2020). In doing so, the Agencies largely ignored the scientific record in ways described in this brief.

SUMMARY OF ARGUMENT

Science is critically important to furthering the objective of the Clean Water Act. Although the Agencies concede the importance of science, in promulgating the NWPR, they

³ See, e.g., Complaint for Declaratory Judgement [sic], *Chesapeake Bay Found., Inc. v. Wheeler*, No. 1:20-cv-01063-RDB (D. Md. Apr. 27, 2020); Complaint for Declaratory and Injunctive Relief, *S.C. Coastal Conservation League v. Wheeler*, No. 2:19-cv-03006-DCN (D.S.C. Oct. 23, 2019).

largely ignored the scientific understanding of how streams and wetlands contribute to the chemical, physical, and biological integrity of downstream waters. The Agencies claim that it is difficult to quantify precisely the number of waters that the NWPR removes from Clean Water Act protection and that they thus need not make any effort to estimate the decline in jurisdiction and the resulting loss of water quality and ecosystem services those waters provide. This brief highlights available data and a scientific tool that were part of the rulemaking record and demonstrated the negative impact the NWPR will have on the Nation's waters. For example, in some western watersheds, the NWPR likely will eliminate Clean Water Act coverage for up to 95% of total stream and river kilometers and up to 72% of total wetland area. The Agencies acted arbitrarily and capriciously by failing to inform themselves—and the public—about the NWPR's significant negative effects. The NWPR's reduction of Clean Water Act protection threatens irreparable harm to every American who benefits from and relies on the integrity of the Nation's waters.

ARGUMENT

I. Proper use of science is critical to achieving the Clean Water Act's objective.

Achieving the goals of the Clean Water Act requires proper consideration of available scientific information. In fact, scientific knowledge is the foundation of effective environmental protection. *See generally, e.g.,* William H. Rodgers, Jr., *Giving Voice to Rachel Carson: Putting Science into Environmental Law*, 28 J. Land Use & Envtl. L. 61 (2012). Simply put, “science is the driving force” behind environmental laws. Fred P. Bosselman & A. Dan Tarlock, *The Influence of Ecological Science on American Law: An Introduction*, 69 Chi.-Kent L. Rev. 847, 847 (1994).

As a general matter, EPA's mission is to “protect human health and the environment.” U.S. EPA, *Our Mission and What We Do*, <https://www.epa.gov/aboutepa/our-mission-and-what->

we-do (last updated Sept. 23, 2020). EPA’s “ability to pursue its mission . . . depends upon the integrity of the science on which it relies.” U.S. EPA, *Scientific Integrity Policy* 2 (2012), https://www.epa.gov/sites/production/files/2014-02/documents/scientific_integrity_policy_2012.pdf. As the Agency itself has stated, its “environmental policies, decisions, guidance, and regulations that impact the lives of all Americans every day must be grounded, at a most fundamental level, in sound, high quality science.” *Id.* Historically, EPA relied on the best available science to support its decisions. *See* U.S. EPA, *Working Together: FY 2018-2022 U.S. EPA Strategic Plan* 42 (2018), <https://www.epa.gov/sites/production/files/2019-09/documents/fy-2018-2022-epa-strategic-plan.pdf>.

The Clean Water Act’s specific objective is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a) (2018). The U.S. Supreme Court noted that the Clean Water Act’s “objective incorporated a broad, systemic view of the goal of maintaining and improving water quality: as the House Report on the legislation put it, ‘the word “integrity” . . . refers to a condition in which the natural structure and function of ecosystems [are] maintained.’” *United States v. Riverside Bayview Homes, Inc.*, 474 U.S. 121, 132 (1985) (citing H.R. Rep. No. 92–911, at 76 (1972)). As Justice Kennedy stated in *Rapanos*, a water is jurisdictional, and therefore entitled to federal protection, if it or its functions “significantly affect the chemical, physical, and biological integrity” of traditional navigable waters. *See Rapanos v. United States*, 547 U.S. 715, 779–80 (2006) (Kennedy, J., concurring in the judgment). Science is critically important to making the necessary empirical determinations about the chemical, physical, and biological integrity of our waters to achieve the Clean Water Act’s broad objective. Indeed, the *only* way to empirically assess “the chemical, physical, and

biological integrity of the Nation’s waters” and the “water quality” and “natural structure” or “function of ecosystems” is through science.⁴

The Agencies therefore must take science into account when promulgating rules under the Clean Water Act, especially with respect to what waters are protected, as that issue—which waters fall under the Clean Water Act’s jurisdiction—is the starting point for any Clean Water Act inquiry. EPA recognizes that “[t]he best available science must serve as the foundation of EPA’s regulatory actions,” Strengthening Transparency in Regulatory Science, 83 Fed. Reg. 18,768, 18,769 (proposed Apr. 30, 2018), yet here, the Agencies largely ignored the available science in formulating the NWPR. The Agencies repeatedly claimed that they were “unable to quantify” the change in jurisdiction for streams, wetlands, and other aquatic ecosystems. The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. at 22,332; U.S. EPA & Dep’t of the Army, *Resource and Programmatic Assessment for the Navigable Waters Protection Rule: Definition of “Waters of the United States”* 22 (Jan. 23, 2020), https://www.epa.gov/sites/production/files/2020-01/documents/rpa_-_nwpr_.pdf (“unable to quantify the change in jurisdiction for tributaries”); *id.* at 26–27 (“unable to quantify” how many wetlands will no longer be protected); *id.* at 24 (“unable to quantify” how many lakes and ponds will no longer be protected). Appendix B to this brief provides more than a dozen

⁴ Every material aspect of the Clean Water Act’s implementation requires the use of science. For example, the U.S. Army Corps of Engineers, the agency vested with responsibility to issue Clean Water Act section 404 permits, relies on scientific manuals in making Clean Water Act jurisdictional determinations. *See, e.g., Tin Cup, LLC v. U.S. Army Corps of Eng’rs*, No. 4:16-cv-00016-TMB, 2017 WL 6550635, at *8 (D. Alaska Sept. 26, 2017) (discussing the scientific basis of Clean Water Act jurisdictional determinations and noting that the Corps’ supplemental manual for Alaska “reflect[s] the benefit of nearly two decades [of] advancement in wetlands research and science”). The Corps’ Clean Water Act determinations themselves have been labeled as “scientific decision[s].” *Avoyelles Sportsmen’s League, Inc. v. Marsh*, 715 F.2d 897, 906 (5th Cir. 1983).

examples of where the Agencies professed an inability to quantify impacts in a meaningful way. However, as discussed more fully below, available science provided those answers.

II. The Agencies ignored reliable scientific tools and data that were available to estimate the extent to which certain waters would lose protection under the Navigable Waters Protection Rule.

In promulgating the NWPR, the Agencies willfully ignored reliable, readily available scientific tools and data capable of estimating the extent to which certain waters would lose protection under the NWPR, while simultaneously claiming to be “unable to quantify” the change in jurisdictional coverage for at least seven separate categories of waters (see Appendix B for list). For example, the Agencies could have used a widely publicized model developed by GeoSpatial Services (“GSS”) of Saint Mary’s University of Minnesota, or they could have created and relied on their own model to estimate the changes resulting from the NWPR. They did neither.

In January 2019, well before the Agencies promulgated the NWPR, GSS developed a Geographic Information System (“GIS”)-based model, called the “CWA Jurisdictional Scenario Model,” that compares and contrasts the extent of Clean Water Act protection for aquatic ecosystems under different regulatory scenarios.⁵ The CWA Jurisdictional Scenario Model was developed in collaboration with an advisory group composed of “experts who have a working understanding of the [Clean Water Act and its regulations], wetland functional assessment, and

⁵ Roger Meyer & Andrew Robertson, *Clean Water Rule Spatial Analysis: A GIS-based Scenario Model for Comparative Analysis of the Potential Spatial Extent of Jurisdictional and Non-Jurisdictional Wetlands* ix, 1 (2019), https://static1.squarespace.com/static/578f93e4cd0f68cb49ba90e1/t/5c50c0e988251bc68fe33388/1548796144041/Hewlett_report_Final.pdf [hereinafter “GSS Report”]. GIS is a conceptualized, computerized framework commonly used by researchers since the 1990s to capture and analyze spatial and geographic data. See Nigel Waters, *History of GIS*, in *The International Encyclopedia of Geography: People, the Earth, Environment, and Technology* 2978, 2985–86 (Douglas Richardson et al. eds., 2017).

spatial analysis techniques.”⁶ At least sixteen comment letters, representing a range of organizations and states, referenced and/or attached the CWA Jurisdictional Scenario Model in response to the proposed NWPR.⁷ The CWA Jurisdictional Scenario Model uses nationally available GIS datasets, including the National Hydrography Dataset (“NHD”),⁸ National

⁶ GSS Report, *supra*, at 6. The model uses ArcGIS ModelBuilder, a standard software system used to model hydrological interactions in the GIS environment. *Id.* at 7. As the GSS Report notes, “ModelBuilder is a visual programming interface that can be used for building geoprocessing workflows or models. These geoprocessing models automate and document the spatial analysis process, providing a transparent and effective way to document and distribute processing methods.” *Id.*

⁷ See, e.g., Comment submitted by Jon Devine, Senior Attorney & Director of Federal Water Policy, Nature Program, Natural Resources Defense Council, 37 & n.91, app. A – pt. 5 (Apr. 15, 2019); Comment submitted by Barbara D. Underwood, Attorney General of New York, et al., attachment A at 21 (Apr. 15, 2019) (submission by 15 Attorneys General, including the Attorney General of Massachusetts); Comment submitted by Jared Polis, Governor, State of Colorado, and Philip J. Weiser, Attorney General, State of Colorado, 2 n.2 (Apr. 15, 2019); Comment submitted by Jan Goldman-Carter, Senior Counsel, Wetlands and Water Resources, National Wildlife Federation, 78 nn.122–123, attachment 2 (Apr. 15, 2019); and Comment submitted by Jennifer Chavez, Staff Attorney, Earth Justice, et al., on behalf of Aaron Isherwood, Phillip S. Berry Managing Attorney, Sierra Club, et al., 26–27 & n.44, 49 & nn.71–72, exhibit G-25 (Apr. 15, 2019). The comments may be viewed in the rulemaking docket for the NWPR, which is available at EPA, *Revised Definition of “Waters of the United States,”* Regulations.gov, <https://www.regulations.gov/docket?D=EPA-HQ-OW-2018-0149>.

⁸ The U.S. Geological Survey (“USGS”) produced the NHD, which provides digital vector GIS data from across the nation to “define the spatial locations of surface waters” at medium resolution (1:100,000 scale) or high resolution (1:24,000 scale or better). USGS, *What Is the National Hydrography Dataset (NHD)?*, https://www.usgs.gov/faqs/what-national-hydrography-dataset-nhd?qt-news_science_products=0#qt-news_science_products (last visited Dec. 9, 2020); USGS, *National Hydrography, National Hydrography Dataset*, https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con (last visited Dec. 9, 2020). The National Map Download viewer allows users to access NHD data by state or hydrologic unit code subbasin. USGS, *NHD View (V1.0)*, <https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View> (last visited Dec. 9, 2020). High-resolution NHD is the best nationally available source for surface water data. See GSS Report, *supra*, at 11; see also The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. at 22,329.

Wetlands Inventory (“NWI”),⁹ and Soil Survey Geographic Database (“SSURGO”),¹⁰ and allows users to compare potential jurisdiction of aquatic ecosystems for different regulatory scenarios. GSS Report, *supra*, at ix–x, 11. The model provides a user interface for modifying model input parameters for exploratory analysis; it is “easily transferable to other geographic areas and watersheds.” *Id.* at 11. Additionally, the model captures factors such as “hydrologic connectivity to traditional navigable waters [and] hydrologic permanence using stream classification.” *Id.* at 5. Ultimately, the CWA Jurisdictional Scenario Model uses the input data and model criteria to generate results regarding the extent of protection of aquatic ecosystems under each scenario. During the public comment period for the NWPR, many commenters alerted the Agencies to the CWA Jurisdictional Scenario Model and the 2019 GSS Study and the model’s utility for estimating the NWPR’s effect on Clean Water Act jurisdiction. The Agencies ignored this tool

⁹ The U.S. Fish and Wildlife Service manages the NWI dataset, which “is a publicly available resource that provides detailed information on the abundance, characteristics, and distribution of US wetlands.” U.S. Fish & Wildlife Serv., *National Wetlands Inventory*, <https://www.fws.gov/wetlands/> (last updated May 11, 2020). The NWI Wetlands Mapper application allows users to download the NWI data. *See* U.S. Fish & Wildlife Serv., *National Wetlands Inventory, Wetlands Mapper*, <https://www.fws.gov/wetlands/data/Mapper.html> (last updated May 4, 2020). NWI is the best nationally available source for wetland data. *See* Qiusheng Wu, *GIS and Remote Sensing Applications in Wetland Mapping and Monitoring*, in *Comprehensive Geographic Information Systems* 140, 147 (2018); *see also* The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. at 22,329.

¹⁰ The Natural Resources Conservation Service produces the Soil Survey Geographic Database (SSURGO), which is a digital soils database that “is intended for natural resource planning and management.” Natural Res. Conservation Serv., *Description of SSURGO Database*, https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053627 (last visited Dec. 9, 2020). The SSURGO Downloader application, which is provided by Esri, allows users to download soils data. *See* Esri, *SSURGO Downloader*, <https://www.arcgis.com/home/item.html?id=c49bd63ea54dd2977f3f2853e07fff> (last visited Dec. 9, 2020). SSURGO is the best nationally available source for soils data. *See* NOAA Office for Coastal Mgmt., *Soil Survey Geographic Database*, <https://coast.noaa.gov/digitalcoast/data/ssurgo.html> (last updated Dec. 4, 2019).

for quantifying the changes in jurisdictional coverage, while presenting their inability to quantify changes in jurisdictional coverage as justification for the NWPR.

The CWA Jurisdictional Scenario Model and scenarios were updated to reflect the NWPR. Three federal regulatory scenarios are modeled: (1) a scenario based on criteria interpreted from new information released with publication of the NWPR; (2) a scenario based on interpretation of criteria used in the Repeal Rule; and (3) a scenario based on interpretation of criteria provided in the Clean Water Rule. *See* Ex. E, Decl. of Andrew G. Robertson, December 10, 2020 (attached to and in support of this brief) [hereinafter “Robertson Decl.”] (containing a table comparing the model criteria used for these three regulatory scenarios).

As an example, the model results show that the NWPR will have a significant negative impact in the more arid regions of the western United States, where there are high proportions of ephemeral streams. Several watersheds were analyzed using the updated model and modeling scenarios and were uploaded to Operation Dashboard applications, including (1) Rio Penasco Watershed, New Mexico; (2) Rio Salado Watershed, New Mexico; (3) Roanwood Creek Watershed, Montana; and (4) South Platte Watershed, Colorado. (See Figure 1 for the model output display for the Rio Penasco watershed.) The NWPR scenario model results for the South Platte, Roanwood Creek, Rio Penasco, and Rio Salado watersheds in the western United States show significant negative impacts in the total kilometers of protected streams and rivers in the watershed, with 45, 74, 81, and 95 percent unprotected, respectively. There tend to be fewer wetlands in these more arid regions, but the model results also indicate that the NWPR will have significant impacts on protection of these rare wetland habitats. The NWPR scenario model results indicate that, for the South Platte, Rio Salado, Roanwood Creek, and Rio Penasco

watersheds, 12, 49, 53, and 72 percent of total wetland acres will not be protected, respectively. Exs. A–D, Robertson Decl.

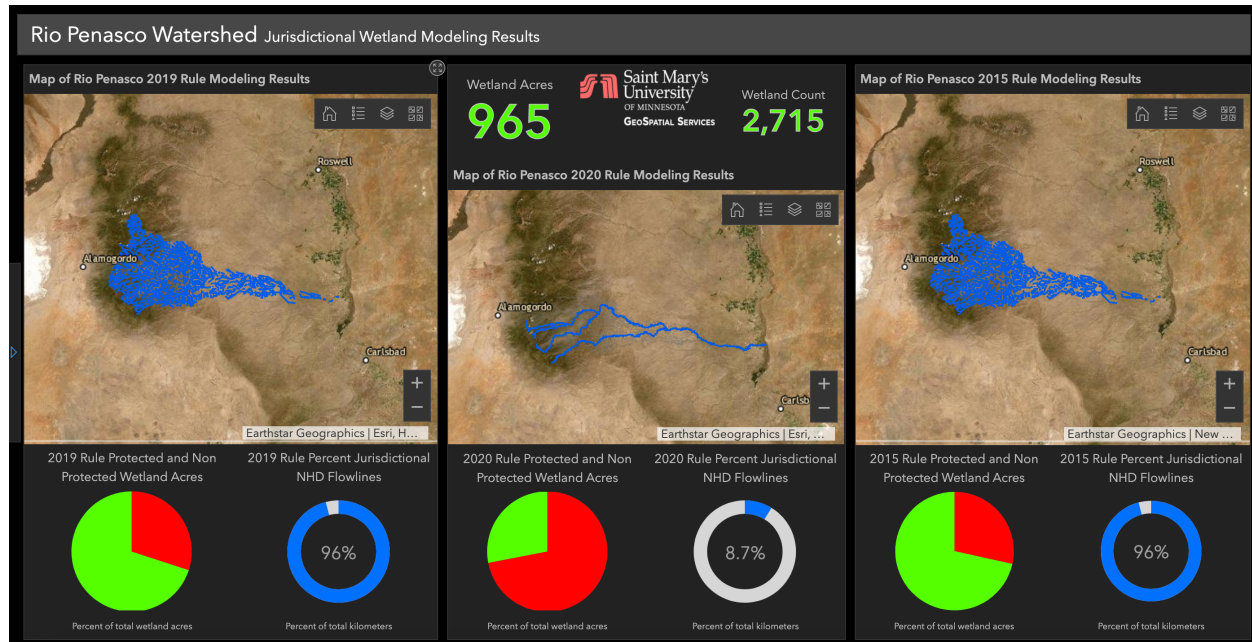


Figure 1. Graphic showing model output displayed in an Esri Operation Dashboard web application for the Rio Penasco Watershed, New Mexico. Source: GSS, *Rio Penasco Watershed Jurisdictional Wetland Modeling Results*, <https://smumn.maps.arcgis.com/apps/opsdashboard/index.html#/0e4ef75cf3134bd3a8a78244772d1502> (last visited Dec. 10, 2020).

These results are qualified, as they often are in scientific research. *See* GSS Report, *supra*, at 33–34 (explaining that appropriate use of the CWA Jurisdictional Scenario Model includes “[b]road-scale evaluation of environmental impact” but not delineations of individual wetlands); *cf.* Fed. Judicial Ctr. & Nat’l Research Council, *supra*, at 51–52. The modeling scenarios focused on the unambiguous differences between the various rules. One of the clear and major differences between the regulatory scenarios that can be explicitly modeled is the NWPR’s exclusion of ephemeral waters. The modeling scenarios focus on these types of clearly defined criteria, and they offered decisionmakers a benchmark for understanding the reduction of jurisdictional scope that will result from the NWPR.

The CWA Jurisdictional Scenario Model is just one scientific tool that was available to the Agencies to estimate the likely magnitude of the reduction of Clean Water Act protection under the NWPR. In promulgating the NWPR, however, the Agencies largely ignored available scientific tools and data sources, claiming instead that they were “unable to quantify” many critical metrics. (See Appendix B for a list of instances where the Agencies claimed an inability to assess the magnitude of the NWPR’s jurisdictional reduction for at least seven separate categories of waters.)

III. The Agencies’ refusal to consider available science regarding the magnitude of the Navigable Water Protection Rule’s reduction in Clean Water Act jurisdiction and protections is arbitrary and capricious.

The Agencies’ refusal to consider the available science, and what that science demonstrated concerning the magnitude of loss of jurisdictional waters under the NWPR, renders their action arbitrary and capricious. As the CWA Jurisdictional Scenario Model demonstrates, the losses are astounding, and the concomitant effect on the chemical, physical, and biological integrity of the Nation’s waters cannot simply be ignored in the rulemaking process. A bedrock tenet of administrative law is that, when engaging in rulemaking, an agency must examine relevant data and provide a reasoned explanation for its decision. *Motor Vehicle Mfrs. Ass’n of U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). The U.S. Supreme Court recently reaffirmed that “[t]his requirement allows courts to assess whether the agency has promulgated an arbitrary and capricious rule by ‘entirely fail[ing] to consider an important aspect of the problem [or] offer[ing] an explanation for its decision that runs counter to the evidence before [it].’” *Little Sisters of the Poor Saints Peter & Paul Home v. Pennsylvania*, 140 S. Ct. 2367, 2383–84 (2020).

EPA’s own regulations provide further detail on what the Agency must analyze when developing and issuing a regulation, such as the NWPR. 40 C.F.R. § 6.101 (2020). In particular,

EPA must consider “[t]he environmental impacts of the proposed action and alternatives.” *Id.* § 6.205(e)(iv). More specifically, EPA must consider impacts to “environmentally important natural resource areas such as wetlands, floodplains, significant agricultural lands, aquifer recharge zones, coastal zones, barrier islands, wild and scenic rivers, and significant fish or wildlife habitat.” *Id.* § 6.204(b)(5).¹¹ The Agencies utterly failed to do so here.

As a preliminary (and fundamental) matter, to understand the NWPR’s environmental impact, the Agencies were required to consider the likely magnitude of the reduction of Clean Water Act protection under the NWPR. In the face of this mandate, the Agencies repeatedly claimed that they were not able to assess the extent to which the Clean Water Act would no longer safeguard waters protected by the Repeal Rule or that were previously protected by the Clean Water Rule. (See Appendix B.) The Agencies made no meaningful attempt to quantify the contraction of the Clean Water Act’s jurisdiction, despite the vast arsenal of tools available to them. The Agencies did not rely upon any maps, charts, diagrams or other tools to help determine how many waters would no longer be protected under the NWPR. The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. at 22,330.

The Agencies suggested that it is too difficult to quantify precisely the extent to which the NWPR would narrow Clean Water Act jurisdiction, and thus they refused to take basic steps to

¹¹ The Agencies’ action here is utterly inconsistent with their National Environmental Policy Act (“NEPA”) obligations. NEPA requires agencies to “study, develop, and describe appropriate alternatives” to a proposed rule. 42 U.S.C. § 4332(E) (2018); *see also Bob Marshall All. v. Hodel*, 852 F.2d 1223, 1229 (9th Cir. 1988) (explaining that “the consideration of alternatives requirement is both independent of, and broader than, the EIS requirement” (which EPA was not required to perform)). In *Municipality of Anchorage v. United States*, the U.S. Court of Appeals for the Ninth Circuit observed, in prescient fashion, that EPA should not be completely exempted from NEPA because “‘it cannot be assumed that EPA will always be the good guy.’” 980 F.2d 1320, 1328 (9th Cir. 1992). EPA’s own NEPA regulations expressly state that EPA’s “development and issuance of regulations” are proposed actions subject to NEPA. 40 C.F.R. § 6.101.

even attempt to estimate which waters would lose protection. Indeed, at oral argument in a challenge to the NWPR in the U.S. District Court for the Northern District of California, counsel for the Agencies suggested that the agencies did not need to assess the impact of the rule nationwide.¹² Such an argument runs directly counter to *State Farm* and EPA's own regulations, thus rendering the NWPR arbitrary and capricious.

Any attempt by the Agencies to rely on the Resource and Programmatic Assessment is misguided as both a matter of fact and law. In the rule's preamble, the Agencies expressly stated that the NWPR "is not based on the information in the agencies' . . . resource and programmatic assessment," and that the document was "not used to establish the new regulatory text for the definition of 'waters of the United States.'" The Navigable Waters Protection Rule: Definition of "Waters of the United States," 85 Fed. Reg. at 22,332, 22,335. The Agencies repeatedly emphasized that the information in the Resource and Programmatic Assessment (as well as the

¹² The District Court inquired about whether the Agencies needed to consider the magnitude of the reduction in Clean Water Act jurisdiction:

THE COURT: ... Does part of that process require the agencies to do some assessment of what -- what waters would have been protected under the existing regime and what will be lost under 2020? Do they have -- is that part of their process, or are they not required to do that?

* * *

THE COURT: Okay. So I take it your answer is they're not required to do it as part of their --

MR. BRIGHTBILL: They're not required to do it, Your Honor.

Transcript of Videoconference Proceedings at 50–51, *California v. Wheeler*, 467 F. Supp. 3d 864 (N.D. Cal. June 19, 2020) (No. 20-cv-3005).

Economic Analysis) “was not used by the [A]gencies to help determine the extent of their authority under the CWA.” U.S. EPA & Dep’t of the Army, *Economic Analysis for the Navigable Waters Protection Rule: Definition of “Waters of the United States”* xi (Jan. 22, 2020).

The validity of the Agencies’ action depends on the validity of the Agencies’ contemporaneous rationale when issuing the NWPR. *See SEC v. Chenery Corp.*, 318 U.S. 80, 95 (1943); *see also Dep’t of Commerce v. New York*, 139 S. Ct. 2551, 2573 (2019) (“in reviewing agency action, a court is ordinarily limited to evaluating the agency’s contemporaneous explanation in light of the existing administrative record”). Taken at their word, the Agencies did not rely on the Resource and Programmatic Assessment to inform themselves about the scope and impact of the NWPR. They cannot now attempt to do so retroactively.

Indeed, on the one hand, the Agencies fully concede that the NWPR “is not based on the information in the [A]gencies’ economic analysis or resource and programmatic assessment.” Mem. in Opp’n to Pls.’ Mot. for Summ. J. & in Supp. of Defs.’ Cross-Mot. for Summ. J. 34, Dec. 3, 2020, No. 20-cv-10820-DPW (citing *The Navigable Waters Protection Rule: Definition of “Waters of the United States,”* 85 Fed. Reg. at 22,322). Yet, on the other hand, the Agencies persist in trying to argue that information related to the Economic Analysis and Resource and Programmatic Assessment is evidence that the Agencies did not ignore the NWPR’s likely impact on water quality. The Agencies now point to what they describe as “117 pages of discussion on water quality” in Chapter 11 of their Response to Comments as evidence that they did not ignore the impact of the rule on water quality. *Id.* at 33. However, this argument fails because Chapter 11 only contains responses to public comments *about* the Economic Analysis and Resource and Programmatic Assessment. *See The Navigable Waters Protection Rule —*

Public Comment Summary Document ch. 11, <https://beta.regulations.gov/document/EPA-HQ-OW-2018-0149-11574> (posted Apr. 21, 2020). The Agencies do not suggest, and the record does not show, that Chapter 11 contains evidence of the Agencies' efforts (outside of the Economic Analysis and Resource and Programmatic Assessment) to attempt to quantify the impacts of the NWPR on water quality.

The Agencies are essentially making a “Schrödinger’s cat” argument: the data are simultaneously irrelevant and relevant.¹³ But *Chenery* does not permit the Agencies to have it both ways. If the Agencies did not rely on the Resource and Programmatic Assessment, then nothing in the record indicates that the Agencies fully (or even partially) considered the magnitude of the NWPR’s reduction in Clean Water Act protections and the resulting environmental impacts. If the Agencies did rely on the Resource and Programmatic Assessment, then the datasets that the Resource and Programmatic Assessment used should have been employed to estimate the scale of the loss of Clean Water Act protections.¹⁴

The Agencies also attempt to evade their obligation to fully consider the NWPR’s impacts in part by questioning the usefulness of the National Hydrology Dataset (“NHD”) and National Wetlands Inventory (“NWI”). *See* The Navigable Waters Protection Rule: Definition of “Waters of the United States,” 85 Fed. Reg. at 22,329. The Agencies acknowledge, however, that

¹³ See Davide Castelvecchi, *Quantum puzzle baffles physicists*, 561 Nature 446, 446 (Sept. 27, 2018) (“In the world’s most famous thought experiment, physicist Erwin Schrödinger described how a cat in a box could be in an uncertain predicament. The peculiar rules of quantum theory meant that it could be both dead and alive, until the box was opened and the cat’s state measured.”).

¹⁴ While the Agencies spend much time calling into question the reliability of the datasets relied on by the Resource and Programmatic Assessment, including the NHD, NWI, and SSURGO, they mistakenly conflate the use of those datasets for jurisdictional delineations for individual sites and their use for estimating broad scale impacts. As explained above in Section II, these datasets can be employed in scientific tools, described in comments to the proposed NWPR, to inform the Agencies and the public about the significant negative effects of the NWPR.

“the NHD and NWI are the most comprehensive hydrogeographic datasets mapping waters and wetlands in the United States and are useful resources for a variety of Federal programs, including CWA programs.” *Id.* Indeed, EPA promotes the use of the NHD “for assigning reach addresses or catchment identifiers to water quality related entities, such as dischargers, drinking water supplies, streams [a]ffected by fish consumption advisories, wild and scenic rivers, Clean Water Act Section 305(b) and 303(d) waterbodies, Designated Uses, etc.” *See* U.S. EPA, *NHDPlus in WATERS*, <https://www.epa.gov/waterdata/nhdplus-waters> (last updated Mar. 11, 2019). The U.S. Army Corps of Engineers uses the NHD as a supporting source to make jurisdictional determinations. *See* U.S. Army Corps of Engineers, *Approved Jurisdictional Determination Form* (n.d.), <https://www.regulations.gov/document?D=EPA-HQ-OW-2018-0149-11699>. Moreover, the U.S. Fish and Wildlife Service relies on the NHD to designate critical habitat under the Endangered Species Act.¹⁵ Yet the Agencies refused to even consider this scientific data as part of the rulemaking for the NWPR. The Agencies’ failure to consider the magnitude of reduction in Clean Water Act jurisdiction, arguably the most important aspect of the rule, renders their action arbitrary and capricious.

To be sure, agencies may revise their regulations, but as the U.S. Supreme Court has repeatedly emphasized, when doing so, agencies must “articulate a satisfactory explanation for [their] action[s],” provide a “reasoned analysis” for their decisions, consider all “relevant factors” in reaching their decisions, and explore “alternative way[s] of achieving” the purpose of

¹⁵ *See, e.g.*, Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Zuni Bluehead Sucker, 81 Fed. Reg. 36,762, 36,784 (June 7, 2016); Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Sharpnose Shiner and Smalleye Shiner, 79 Fed. Reg. 45,242, 45,255, 45,263, 45,271 (Aug. 4, 2014); Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Diamond Darter (*Crystallaria cincotta*), 78 Fed. Reg. 52,364, 52,377, 52,385 (Aug. 22, 2013).

their rules. *State Farm*, 463 U.S. at 42, 43, 48, 57. Conclusory statements that ignore readily available scientific information, or information in the rulemaking record, do not substitute for a satisfactory explanation or reasoned analysis. The Clean Water Rule, the revocation of which is currently being challenged, reflected the best available science about the connectivity and mechanisms by which streams and wetlands affect the chemical, physical, and biological integrity of downstream waters. The extensive scientific analysis in the Connectivity Report, based on a review of over 1,200 peer-reviewed publications and supported by EPA’s Science Advisory Board, provided much of the technical basis for the Clean Water Rule. *See Clean Water Rule: Definition of “Waters of the United States,”* 80 Fed. Reg. at 37,057.

In contrast, the preamble and supporting documents to the NWPR provide only conclusory statements about how the proposed rule *might* contribute to the Clean Water Act’s overall goals. For example, the Agencies offer no explanation about how removing the entire category of ephemeral streams from the definition of “waters of the United States” will restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. The Agencies also offer no explanation about how removing protection for millions of acres of wetlands,¹⁶ even those hydrologically connected to traditional navigable waters, will restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. It is evident that the Agencies consciously disregarded the effect the NWPR would have on water quality.

The overall objective of the Clean Water Act is translucently clear: to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters. *See County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462, 1468 (2020). This objective can only be

¹⁶ Comment submitted by American Fisheries Society, et al., 5 (Apr. 10, 2019), <https://www.regulations.gov/document?D=EPA-HQ-OW-2018-0149-4256>; S. Mažeika Patricio Sullivan et al., *Distorting science, putting water at risk*, 369 Science 766 (Aug. 14, 2020).

achieved if the definition of “waters of the United States” is grounded in sound available science. The Agencies failed to do so here.

CONCLUSION

The NWPR eliminates Clean Water Act protection for many aquatic ecosystems and thus will cause irreparable harm to all Americans who benefit from and rely on the integrity of the Nation’s waters. As the EPA’s own Science Advisory Board concluded, the NWPR lacks a scientific justification. Science alone does not dictate Clean Water Act policy, but science cannot be disregarded. The Agencies failed to consider the extent to which their actions will reduce Clean Water Act jurisdiction by ignoring available scientific tools and data. Their actions were thus arbitrary and capricious. As such, and for the foregoing reasons, *amici curiae* respectfully request that this Court grant Plaintiffs’ motion for summary judgment.

Dated: December 17, 2020

Respectfully submitted,

/s/ Mark B. Lavoie

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Counsel for Amici Curiae

* Admission to the bar of the U.S. District Court for the District of Massachusetts pending.

** Application for admission *pro hac vice* forthcoming.

*** Affiliations provided for identification purposes only.

CERTIFICATE OF SERVICE

I hereby certify that on December 17, 2020, I caused the foregoing **BRIEF OF SCIENTIFIC SOCIETIES AS *AMICI CURIAE* IN SUPPORT OF PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT**, and attached declaration, to be filed and served upon counsel of record via the Court's CM/ECF filing system.

Dated: December 17, 2020

/s/ Mark B. Lavoie

APPENDIX A

Descriptions of *Amici Curiae*

The **American Fisheries Society (AFS)** is the world's oldest and largest organization dedicated to strengthening the fisheries profession, advancing fisheries science, and conserving fisheries resources. AFS has over 8,000 members from around the world, including fisheries managers, biologists, professors, ecologists, aquaculturists, economists, engineers, geneticists, and social scientists. AFS promotes scientific research and sustainable management of fisheries resources. The organization publishes five of the world's leading fish journals and many renowned books, organizes scientific meetings, and encourages comprehensive education and professional development for fisheries professionals.

The **Association for the Sciences of Limnology and Oceanography (ASLO)** has been the leading professional organization for researchers and educators in the field of aquatic science for more than 60 years. ASLO's purpose is to foster a diverse, international scientific community that creates, integrates, and communicates knowledge across the full spectrum of aquatic sciences, advances public awareness and education about aquatic resources and research, and promotes scientific stewardship of aquatic resources for the public interest.

The **Coastal and Estuarine Research Federation (CERF)** is a multidisciplinary organization of individuals who study and manage the structure and functions of estuaries and the effects of human activities on these environments. CERF's members are dedicated to advancing human understanding and appreciation of estuaries and coasts worldwide, to the wise stewardship of these ecosystems, and to making the results of their research and management actions available to their colleagues and to the public.

The **International Association for Great Lakes Research (IAGLR)** is a scientific organization made up of researchers with a mission to advance understanding of the world's great lake ecosystems. IAGLR promotes all aspects of large lakes research and communicates research findings through publications and meetings. Its members encompass all scientific disciplines with a common interest in the management of large lake ecosystems on many levels. IAGLR's *Journal of Great Lakes Research* is a peer-reviewed publication with broad distribution.

The **North American Lake Management Society (NALMS)** is a non-profit organization of professionals and citizens. Founded in 1980, its mission is to forge partnerships among citizens, scientists, and professionals to foster the management and protection of lakes and reservoirs for today and tomorrow. NALMS seeks to identify needs and encourage research on lake ecology and watershed management, facilitate the exchange of information on aspects of managing lakes and their watersheds, promote public awareness of and encourage public support for management of lake ecosystems, offer guidance to agencies involved in management activities for lakes and their watersheds, and provide a forum for professional development and training.

The **Phycological Society of America (PSA)** was founded in 1946 to promote research and teaching in all fields of phycology. PSA publishes the *Journal of Phycology*, the premier journal of research on phycology, and the *Phycological Newsletter*. PSA holds annual meetings, often

jointly with other national or international societies of mutual member interest. The society also provides grants and fellowships to graduate student members.

The **Society for Ecological Restoration (SER)** is a leading international organization working to advance the science, practice, and policy of ecological restoration. Founded in 1988, SER works at the international, regional, and national levels, partnering with government agencies, intergovernmental organizations, NGOs, and the private sector to advance the science, practice, and policy of ecological restoration for the benefit of biodiversity, ecosystems, and humans. SER publishes the peer-reviewed bimonthly journal *Restoration Ecology*, as well as other resources and guidance regarding ecological restoration. SER has more than 3,000 members across the world including researchers, practitioners, decision-makers, indigenous people, and community leaders; its members are actively engaged in the ecologically sensitive repair and recovery of degraded ecosystems, including wetlands, rivers, and all types of freshwater and marine ecosystems.

The **Society for Freshwater Science (SFS)** is an international organization whose purpose is to promote further understanding of freshwater ecosystems (rivers, streams, lakes, reservoirs, and estuaries) and ecosystems at the interface between aquatic and terrestrial habitats (wetlands, bogs, fens, riparian forests, and grasslands). Its members study freshwater organisms, biotic communities, physical processes that affect ecosystem function, linkages between freshwater ecosystems and surrounding landscapes, habitat and water quality assessment, and conservation and restoration. SFS fosters the exchange of scientific information among its membership and with other professional societies, resource managers, policymakers, educators, and the public. The organization advocates for the use of best available science in policymaking and management of freshwater ecosystems.

The **Society of Wetland Scientists (SWS)** is a leading professional association of wetland and aquatic scientists around the world, including the United States. Established in 1980, SWS advances scientific and educational objectives related to wetland science and encourages professional standards in all activities related to wetland science. The society has over 3,000 members and publishes a peer-reviewed quarterly journal, *Wetlands*, concerned with all aspects of wetland biology, ecology, hydrology, water chemistry, soil, and sediment characteristics. SWS supports the use of the best available scientific information in making decisions on the use and management of wetland and aquatic resources.

APPENDIX B

Agencies' Claims of Inability to Assess Magnitude of NWPR's Jurisdictional Reduction

Preamble to the Final Rule, 85 Fed. Reg. at 22,332: “[T]he agencies are not aware of any means to quantify changes in CWA jurisdiction with any precision that may or may not occur as a result of this final rule.”

Preamble to the Final Rule, 85 Fed. Reg. at 22,329: “[T]he agencies also did not use the NHD or NWI to assess potential changes in jurisdiction as a result of the final rule.”

Preamble to the Final Rule, 85 Fed. Reg. at 22,332: “[T]he agencies are not aware of any map or dataset that accurately or with any precision portrays the scope of CWA jurisdiction at any point in the history of this complex regulatory program.”

Resource and Programmatic Assessment at 20: “[T]he agencies lack sufficient data to quantify the difference” of [1] jurisdictional interstate waters under the 2019 rule and the final rule.

Resource and Programmatic Assessment at 22: The agencies are “unable to quantify the change in jurisdiction for [2] tributaries[.]”

Resource and Programmatic Assessment at 22–23: The agencies are “unable to approximate what percentage of [3] currently jurisdictional non-relatively permanent waters are ephemeral that will no longer be jurisdictional under the revised definition of ‘waters of the United States.’”

Resource and Programmatic Assessment at 24: The agencies are “unable to quantify” how many [4] lakes and [5] ponds will no longer be protected.

Resource and Programmatic Assessment at 25: The agencies are “unable to quantify” the change in jurisdiction of [6] impoundments compared to the baseline.

Resource and Programmatic Assessment at 26–27: The agencies are “unable to quantify” how many [7] wetlands will no longer be protected.

Resource and Programmatic Assessment at 30: The agencies are “unable to . . . determine how many waters have been determined to meet an exclusion from the definition of ‘waters of the United States’ under the 2019 Rule/*Rapanos* Guidance practice and are unable to quantify the magnitude of the changes in jurisdiction due to these exclusions.”

Resource and Programmatic Assessment at 30: The agencies are “unable to quantify potential changes in jurisdiction as a result of the final rule’s ditch exclusion.”

Resource and Programmatic Assessment at 33: The agencies are “unable to quantify this change” for artificial lakes and ponds.

Resource and Programmatic Assessment at 33: The agencies are “unable to quantify this change” for exclusions of “stormwater control features constructed in upland or in non-jurisdictional waters that convey, treat, infiltrate, or store stormwater run-off.”

Resource and Programmatic Assessment at 33–34: The agencies are “unable to quantify this change” for exclusions of “groundwater recharge, water reuse, and wastewater recycling structures.”

Economic Analysis at xi: “As discussed further in this document, the final rule reduces the scope of federal CWA jurisdiction over certain waters (e.g., some ephemeral streams, isolated wetlands, and ditches) compared to prior regulations, although the agencies are unable to quantify these changes with any reliable accuracy.”

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

CONSERVATION LAW FOUNDATION, et al.,)	
)	
Plaintiffs,)	
)	
v.)	Case No. 20-cv-10820-DPW
)	
)	
U.S. ENVIRONMENTAL PROTECTION)	
AGENCY, et al.,)	
)	
Defendants.)	

**DECLARATION OF ANDREW G. ROBERTSON IN SUPPORT OF BRIEF OF
SCIENTIFIC SOCIETIES AS *AMICI CURIAE* IN SUPPORT OF PLAINTIFFS'
MOTION FOR SUMMARY JUDGMENT**

I, ANDREW G. ROBERTSON, pursuant to 28 U.S.C. § 1746, declare as follows:

1. I am Executive Director of GeoSpatial Services (GSS) at Saint Mary's University of Minnesota where I am responsible for oversight and management of all GSS projects, activities, and staff. I lead the management of project resources for a wide range of spatial data development and natural resource related projects, and I provide supervision and development for technical staff.
2. I am a member of the Society of Wetland Scientists, one of the *amici curiae*, and submit this declaration in support of the brief of the aquatic scientific societies as *amici curiae* in Support of Plaintiffs' Motion for Summary Judgment.
3. Attached hereto as Exhibit A is a true and correct copy of a graphic showing the CWA Jurisdictional Scenario Model output displayed in an Esri Operation Dashboard web application for the Rio Penasco Watershed, New Mexico, which is available at <https://smumn.maps.arcgis.com/apps/opsdashboard/index.html#/0e4ef75cf3134bd3a8a78244772d1502>.
4. Attached hereto as Exhibit B is a true and correct copy of a graphic showing the CWA Jurisdictional Scenario Model output displayed in an Esri Operation Dashboard web application for the Rio Salado Watershed, New Mexico, which is available at <https://smumn.maps.arcgis.com/apps/opsdashboard/index.html#/2faf803a96e7446d8263139316a7a263>.
5. Attached hereto as Exhibit C is a true and correct copy of a graphic showing the CWA Jurisdictional Scenario Model output displayed in an Esri Operation Dashboard web

application for the Roanwood Creek Watershed, Montana, which is available at <https://smumn.maps.arcgis.com/apps/opsdashboard/index.html#/9f51117ce5cc4ead87eca3a9e63a6f39>.

6. Attached hereto as Exhibit D is a true and correct copy of a graphic showing the CWA Jurisdictional Scenario Model output displayed in an Esri Operation Dashboard web application for the South Platte Watershed, Colorado, which is available at <https://smumn.maps.arcgis.com/apps/opsdashboard/index.html#/d2b3138f662540d9a1543f8a866d5859>.
7. Attached hereto as Exhibit E is a true and correct copy of a table comparing the model criteria for the 2020 Rule (Navigable Waters Protection Rule), 2019 Rule (Repeal Rule), and 2015 Rule (Clean Water Rule) generated by Roger Meyer and me, authors of *Clean Water Rule Spatial Analysis: A GIS-based Scenario Model for Comparative Analysis of the Potential Spatial Extent of Jurisdictional and Non-Jurisdictional Wetlands* (2019).

I declare under penalty of perjury that the foregoing is true and correct.

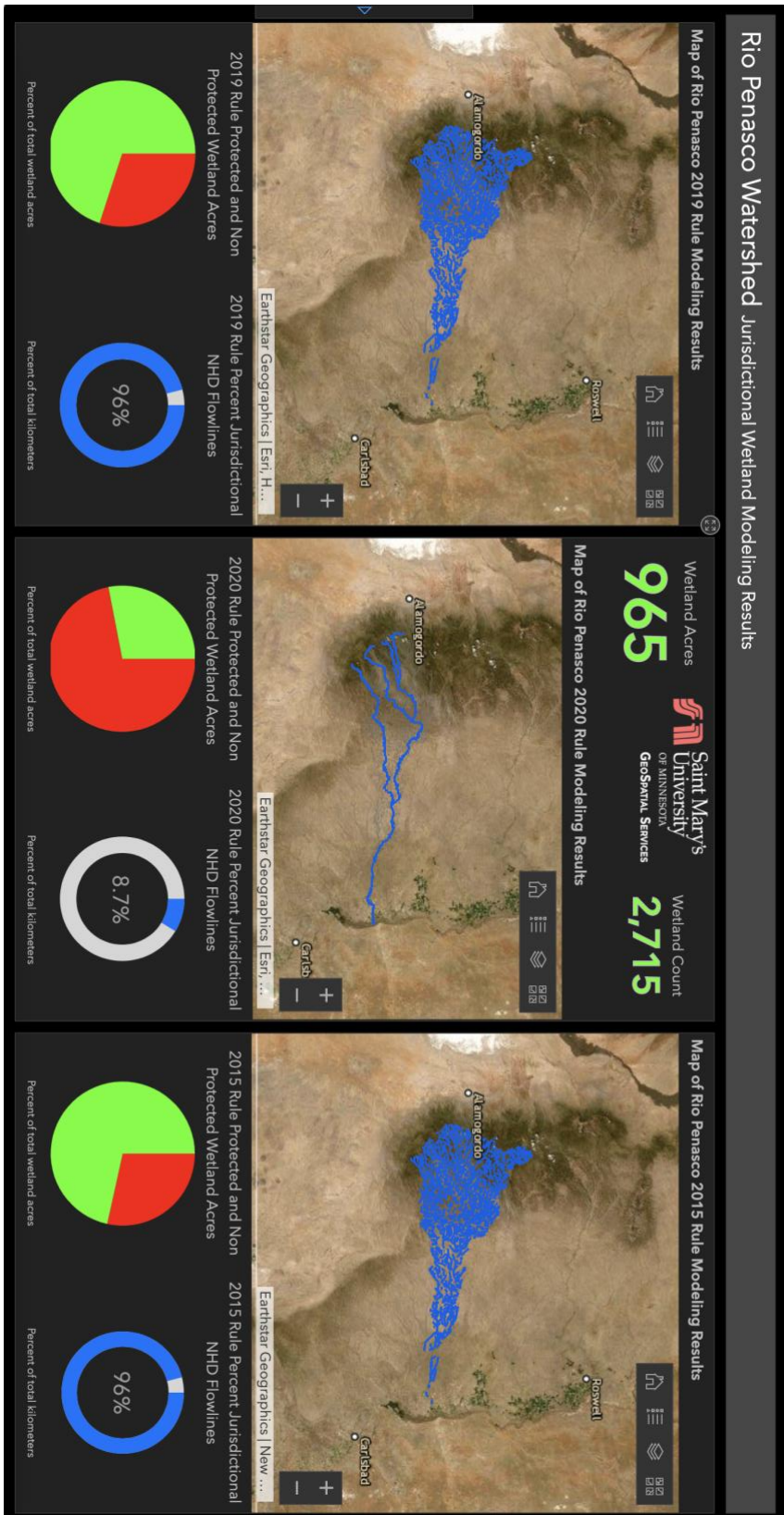
Executed on this 10 day of December 2020 in Winona, Minnesota.

By: _____



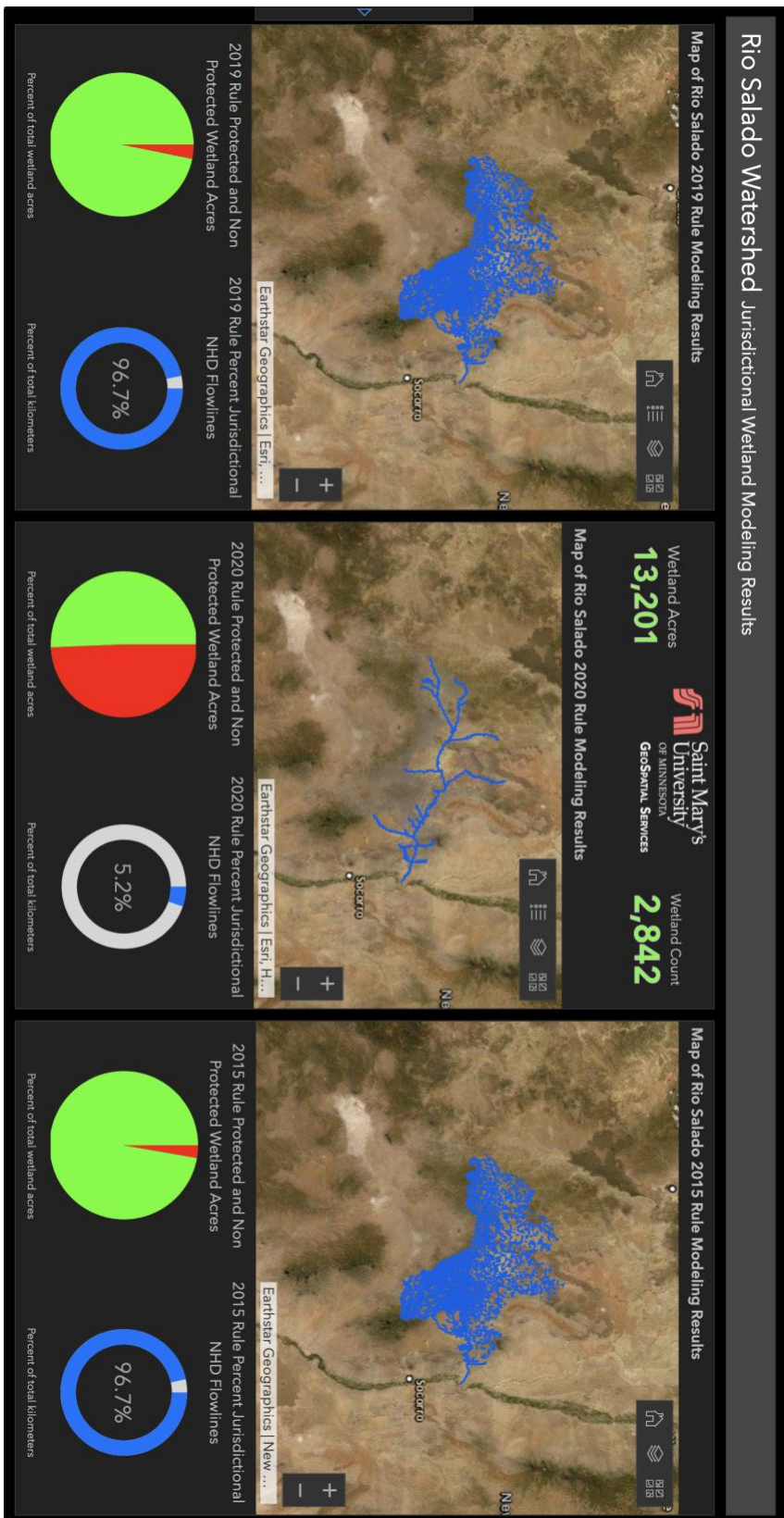
Andrew G. Robertson

EXHIBIT A



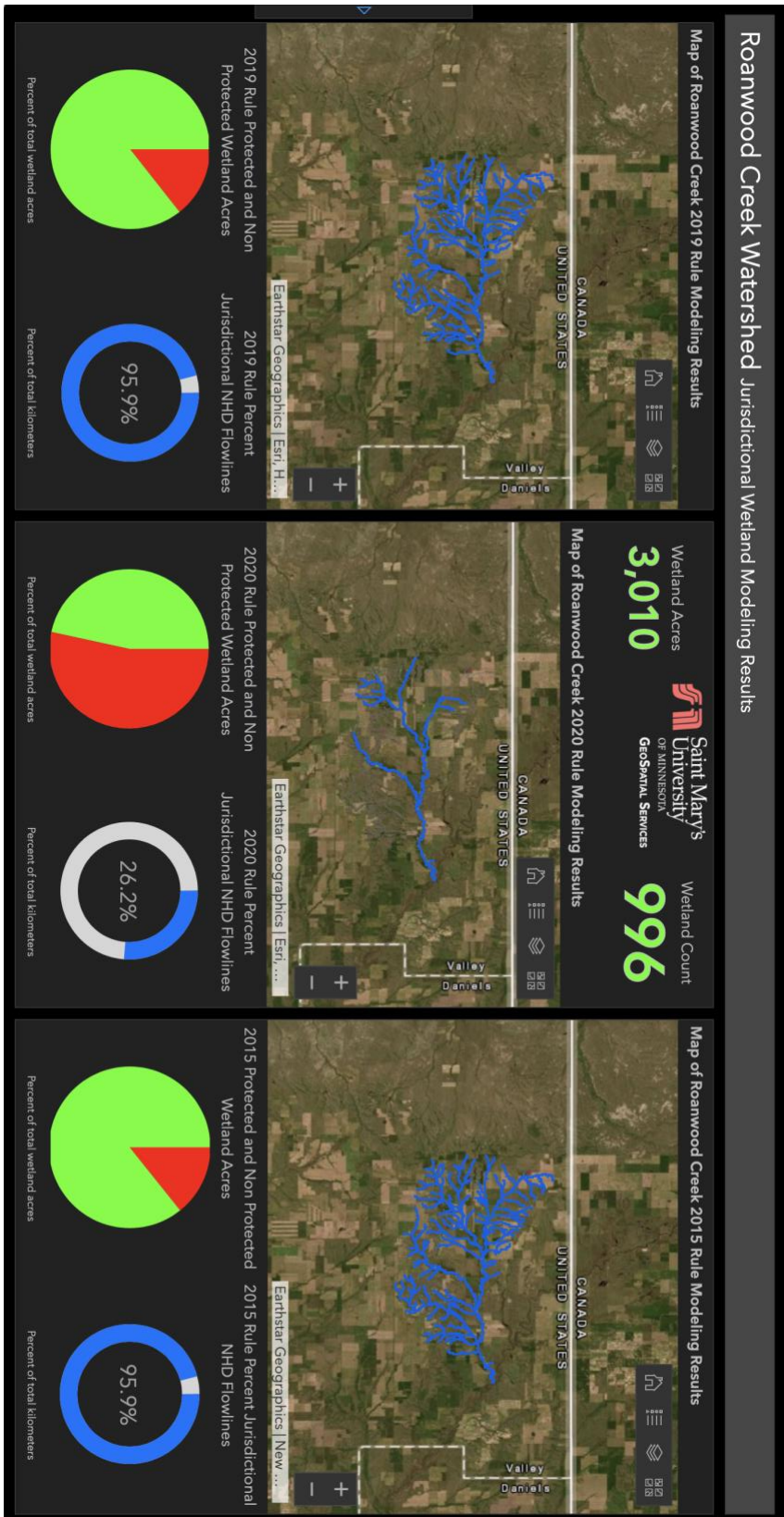
Graphic showing model output displayed in an Esri Operation Dashboard web application for the Rio Penasco Watershed, New Mexico.

EXHIBIT B



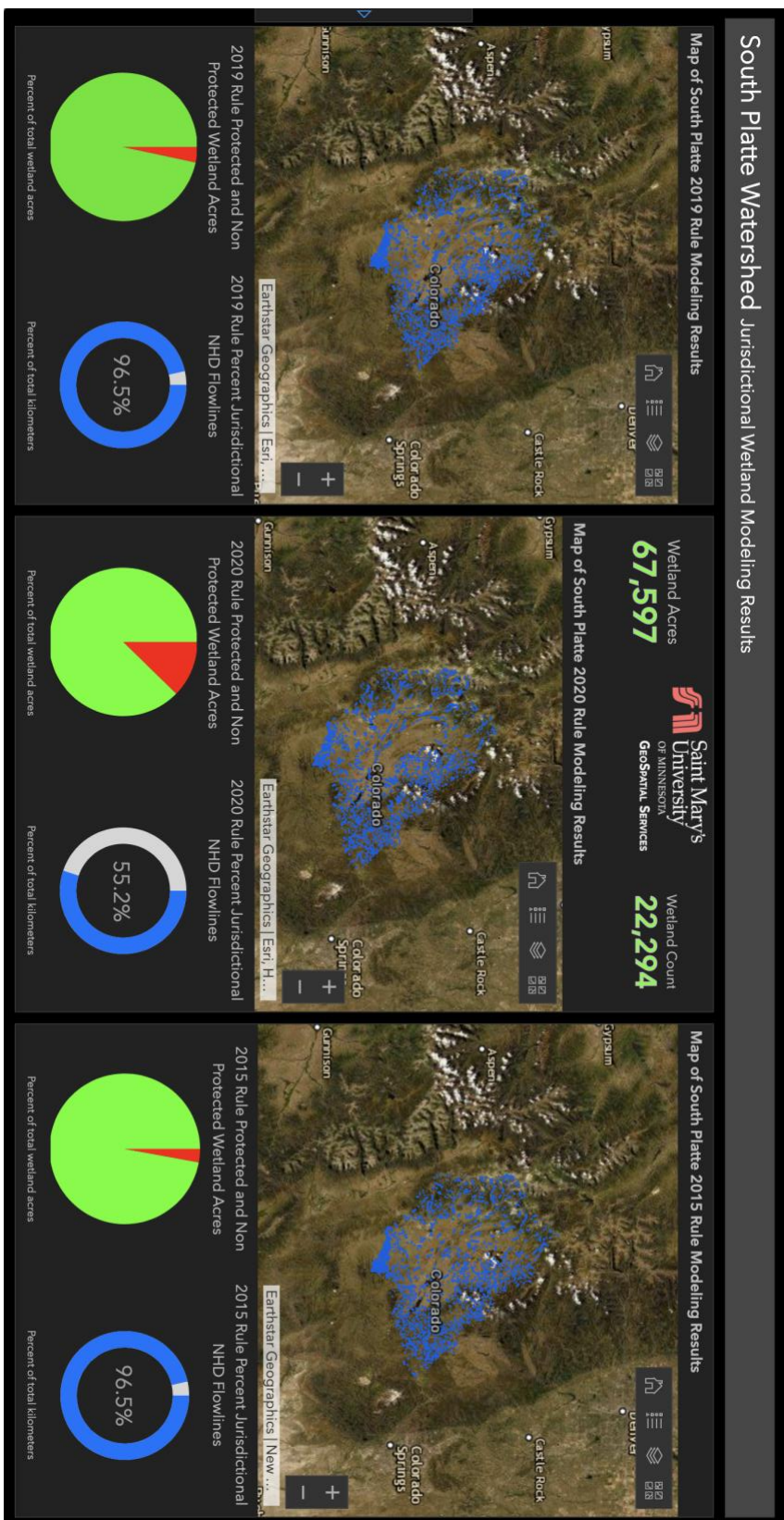
Graphic showing model output displayed in an Esri Operation Dashboard web application for the Rio Salado Watershed, New Mexico.

EXHIBIT C



Graphic showing model output displayed in an Esri Operation Dashboard web application for the Roanwood Creek Watershed, Montana.

EXHIBIT D



Graphic showing model output displayed in an Esri Operation Dashboard web application for the South Platte Watershed, Colorado.

EXHIBIT E

**Comparison of the model criteria
for the 2019 Rule, 2020 Rule, and 2015 Rule modeling scenarios**

NHD: National Hydrography Dataset

TNW: Traditional Navigable Waters

RPW: Relatively Permanent Water

NWI: National Wetlands Inventory

Model Criteria	2019 Rule (Repeal Rule)	2020 Rule (Navigable Waters Protection Rule)	2015 Rule (Clean Water Rule)
Stream and river jurisdiction	NHD perennial, intermittent, ephemeral, and ditches connected by flow to the nearest downstream TNW	NHD perennial and intermittent connected by flow to the nearest downstream TNW	NHD perennial, intermittent, ephemeral, and ditches connected by flow to the nearest downstream TNW
Lake jurisdiction	NWI lacustrine polygons that are not artificially flooded are jurisdictional RPWs	NWI lacustrine polygons that are not artificially flooded and intersect a jurisdictional stream/river RPW are jurisdictional	NWI lacustrine polygons that are not artificially flooded are jurisdictional RPWs
Wetland adjacency	Wetlands directly intersecting RPW lakes and RPW streams/rivers are jurisdictional by rule	Wetlands directly intersecting RPW lakes and RPW streams/rivers are jurisdictional by rule	Wetlands intersecting within 100ft of RPW lakes and RPW streams/rivers are jurisdictional by rule
Estuarine wetlands	Estuarine are jurisdictional	Estuarine are jurisdictional	Estuarine are jurisdictional
Wetland to wetland connectivity	Iterative adjacent-to-adjacent of the initial jurisdictional selection set within the user-specified distance of 30 meters are added to the final jurisdictional selection set	Scenario does not allow for wetland to wetland connectivity	Iterative adjacent-to-adjacent of the initial jurisdictional selection set within the user-specified distance of 30 meters are added to the final jurisdictional selection set
Floodplain wetlands	Scenario does not model jurisdictional floodplain wetlands	Scenario does not model jurisdictional floodplain wetlands	Wetlands intersecting the floodplain and within 1,500ft of a RPW or TNW are jurisdictional by rule

Model Criteria	2019 Rule (Repeal Rule)	2020 Rule (Navigable Waters Protection Rule)	2015 Rule (Clean Water Rule)
Cropland wetlands, artificially flooded wetlands, and excavated wetlands	NWI palustrine wetlands with the artificial K water regime or farmed f modifier are excluded from the jurisdictional selection	NWI palustrine wetlands with the artificial K water regime, farmed f modifier, or excavated x modifier are excluded from the jurisdictional selection	NWI palustrine wetlands with the artificial K water regime or farmed f modifier are excluded from the jurisdictional selection
Interstate wetlands	Jurisdictional by rule, no specific modeling criteria applied	Not jurisdictional unless jurisdictional based on other scenario criteria	Jurisdictional by rule, no specific modeling criteria applied
Significant nexus wetlands	Jurisdictional by rule, no specific modeling criteria applied	Not modeled	Possible significant nexus wetlands are flagged if categorical significant nexus wetlands (e.g., prairie potholes or Delmarva Bays) are identified or if the wetland intersects the riparian area floodplain and is greater than 1,500ft but less than 4,000ft from a RPW or TNW