UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

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

DECLARATION OF STACY WOODS, Ph.D., M.P.H.

I, Stacy Woods, declare as follows:

1. I am a data scientist, with focused expertise in spatial analysis, mapping, and data visualization. Much of my work requires the use of geographic information systems (GIS).

2. I am presently employed as a staff scientist by the Natural Resources Defense Council, Inc. (NRDC), a non-profit health and environmental organization, and a plaintiff in this litigation. My work for NRDC focuses on spatial analysis, mapping with GIS, and data visualization. In my position at NRDC, I have produced both static (printable) maps and web-based interactive maps using GIS.

3. I received a Ph.D. in Environmental Health from the Johns Hopkins Bloomberg School of Public Health (JHSPH) in 2016. My doctoral dissertation used spatial statistics and GIS to assess changes in air quality and the influence of federal and state regulations over time ("Investigating the space-time variation in fine particulate matter pollution in the Northeastern United States, 2000-2014," June 2016). I also received a Master of Public Health degree from JHSPH in 2010. My Master's thesis utilized statistical cluster analysis and GIS to identify

hotspots of Lyme disease transmission in Howard County, Maryland ("Spatial analysis of Lyme disease in Howard County, Maryland," December 2010). I received my Bachelor of Science degree in Entomology and Nematology from the University of Florida in 2007.

4. From July 2016 to November 2017, I worked as an epidemiologist in the Health Effects Division, Office of Pesticide Programs, U.S. Environmental Protection Agency. While working toward my Ph.D., I was a Mirzayan Science and Technology Fellow at the National Academies of Science, Engineering, and Medicine (Board on Environmental Studies and Toxicology), and a Brown Scholar in Community Health at Johns Hopkins. In 2011, I worked as Senior Research Assistant with the Johns Hopkins Center to Reduce Cancer Disparities, in Baltimore, Maryland. In this position, I used GIS to illustrate the differences in accessibility to cancer diagnosis and treatment facilities across Maryland.

5. I have co-authored papers involving GIS mapping that have been published in peer-reviewed scientific literature. As a coauthor of "Ancient convergent loss of PON1 yields deleterious consequences for modern marine mammals" (*Science*, August 2018), I conducted a mapped analysis of potential overlap between manatees and pesticide runoff in Florida. As a coauthor of "The spatial and temporal association of neighborhood drug markets and rates of sexually transmitted infections in an urban setting" (*Health & Place*, September 2013), I analyzed social networks and produced maps showing the connection between social networks of illicit drug markets and sexually transmitted disease in Baltimore, Maryland.

6. My expertise in spatial data began with learning GIS software through a graduate course at Johns Hopkins in January 2010. Later, I taught Master's and doctoral students the software as the lead teaching assistant for the GIS and spatial statistics courses at Johns Hopkins from 2012 to 2015. My day-to-day work at NRDC includes locating, mapping, and analyzing

spatial data, including data from local, state, and federal agencies, as well as advising NRDC colleagues on the use and analysis of spatial data and GIS.

7. My *curriculum vitae* is attached to this Declaration as Exhibit 1.

Overview of Analysis for this Case

8. I understand that the Navigable Waters Protection Rule—the U.S. Environmental Protection Agency and U.S. Army Corps of Engineers' new regulatory definition of "waters of the United States," 85 Fed. Reg. 22,250 (April 21, 2020)—eliminates Clean Water Act protections for all ephemeral streams, as well as wetlands that do not abut or have certain types of surface water connections to otherwise protected waters.

9. Plaintiffs asked me to provide them with the following information:

a. Maps showing the location of perennial, intermittent, and ephemeral streams, and in certain instances wetlands, for the following 25 watersheds in the United States:

(1) Upper Rio Grande (in New Mexico),

(2) Santa Fe and Albuquerque (in New Mexico), including the Rio Grande,

(3) Rio Hondo (in New Mexico),

(4) Rio Chama (in New Mexico),

(5) Tulare-Buena Vista Lakes (in California), including the Kings River,

(6) San Joaquin River (in California),

(7) Middle Muddy Creek (in Oregon),

(8) Agua Fria River (in Arizona),

(9) Upper Gila River (in New Mexico),

(10) San Francisco River (in Arizona and New Mexico),

(11) Pecos Headwaters (in New Mexico),

(12) Upper Connecticut River (in New Hampshire and Vermont), including the Connecticut Lakes,

(13) Middle Connecticut River (in New Hampshire and Massachusetts),

(14) Merrimack River (in New Hampshire and Massachusetts),

(15) Blackstone River (in Massachusetts),

(16) Presumpscot River (in Maine), including Casco Bay and Sebago Lake,

(17) Nashua River (in Massachusetts),

(18) Charles River (in Massachusetts), including Cape Ann,

(19) Piscataqua-Salmon Falls (in New Hampshire and Maine), including the Great Bay, Bellamy River, Cocheco River, and Little River,

(20) Big Cypress Swamp (in Florida), including Estero Bay and Audubon Corkscrew Swamp Sanctuary,

(21) Caloosahatchee River (in Florida),

(22) Chicago River (in Illinois), including the North Branch Chicago River,

(23) Little Calumet-Galien (in Michigan, Indiana, and Illinois), including White Ditch and part of the Lake Michigan shoreline,

(24) Menominee River (in Wisconsin and Michigan), including Seagull Bar Natural Area and part of the Green Bay shoreline,

(25) Namekagon River (in Wisconsin); and

b. For 14 of the 25 watersheds identified in Paragraph 9(a) above (specifically, watersheds numbered (12) through (25)), estimates of the acreage and percentage of wetlands excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to a GIS model created by Saint Mary's University of Minnesota's GeoSpatial Services (the St. Mary's Model). Attached as Exhibit 2 is a copy of the paper describing the St. Mary's Model.

10. To produce the information requested by Plaintiffs, I was assisted by a program assistant at NRDC, whose work I supervised.

11. For each watershed listed in Paragraph 9(a) above, Plaintiffs provided us with the name of a particular water of interest (such as a river or stream) and a corresponding location or geographic range to include in our map (such as the name of a city or a range of cities). Plaintiffs also asked us to label the water of interest and, in certain instances, nearby places (such as cities or parks).

Methods for Creating Maps

12. The following paragraphs describe the methods my assistant and I used to create maps of perennial, intermittent, and ephemeral streams, and in certain instances wetlands, for the watersheds listed in Paragraph 9(a).

13. To create the maps, we used stream data from the National Hydrography Dataset (NHD), a federal government dataset that contains spatial information about waterbodies, such as rivers, streams, canals, lakes, and ponds, throughout the United States.[1] We also used wetland

[1] U.S. Geological Survey, *National Hydrography*, https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-

data from the National Wetland Inventory (NWI), a federal government dataset that contains spatial information about wetlands throughout the United States.[2] We used U.S. Census Bureau data to identify and label cities.[3]

14. In the United States, watersheds are classified at different geographic scales known as hydrologic units. To create maps of watersheds, we downloaded data at the scale of Hydrologic Unit Code (HUC) 8, which represents the subbasin level, analogous to a medium-sized river basin.

15. We created each map in ArcMap version 10.7.1 (ESRI), a GIS software, using the following methods.

16. First, to map streams, we downloaded the NHD data for the relevant HUC 8 watershed from the U.S. Geological Survey's National Map Downloader website.[4] To identify the relevant HUC 8 watershed, we searched for the location that was provided by Plaintiffs (see Paragraph 11 above) in the website's location search bar. The website generated a link to the NHD data for the HUC 8 watershed corresponding to the location. If the location or geographic range provided by Plaintiffs spanned two different HUC 8 watersheds, we downloaded the NHD data for both watersheds.

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[2] U.S. Fish & Wildlife Service, National Wetlands Inventory, *Wetlands*, https://www.fws.gov/wetlands/ (last visited Oct. 9, 2020).

[3] Data.gov, *U.S. Census Bureau – Series Information File for the 2017 TIGER/Line Shapefile, Current Place State-based*, https://catalog.data.gov/dataset/series-information-file-for-the-2017-tiger-line-shapefile-current-place-state-based (accessed between May 26, 2020 and Sept. 10, 2020).

[4] U.S. Geological Survey, *NHDView*, https://viewer.nationalmap.gov/basic/?basemap=b1&category=nhd&title=NHD%20View (accessed between May 14, 2020 and Sept. 30, 2020).

17. We downloaded the NHD data for each watershed in *shapefile* format, which is a bundled collection of spatial data files that can be mapped with a GIS. From the available data, we mapped the "NHDFlowline" shapefile, which contains records for flowing waters such as streams, and the "NHDArea" shapefile, which contains records for areal waters.[5] Each record in "NHDFlowline" and "NHDArea" is classified by an FCode, which identifies the feature type for that record.[6] For this analysis, we extracted records (using the "select by attribute" function in ArcMap) with the following FCodes: perennial streams (FCode = 46006), intermittent streams (FCode = 46003), ephemeral streams (FCode = 46007). For certain watersheds, we also extracted records with the following codes: artificial paths (FCode = 55800), canals/ditches (FCode = 33600, 33601, 33603).

18. Second, to map wetlands, we downloaded the NWI dataset for the relevant HUC 8 watershed from the U.S. Fish and Wildlife Service's Wetlands Mapper website.[7] Each NWI dataset includes a shapefile that contains records for wetlands and other water features. For this analysis, we extracted any records that were classified as "wetland" (using the "select by attribute" function in ArcMap), which included the following three categories: freshwater emergent wetland, freshwater forested/shrub wetland, and estuarine and marine wetland. We did

[5] U.S. Geological Survey, NHD User Guide, *NHDFlowline*, https://nhd.usgs.gov/userGuide/Robohelpfiles/NHD_User_Guide/Feature_Catalog/Hydrography_Dataset/NHDFlowline/NHDFlowline.htm (last visited Oct. 9, 2020); U.S. Geological Survey, NHD User Guide, *NHDArea*, https://nhd.usgs.gov/userGuide/Robohelpfiles/NHD_User_Guide/Feature_Catalog/Hydrography_Dataset/NHDArea/NHD_Area.htm (last visited Oct. 9, 2020).

[6] U.S. Geological Survey, NHD User Guide, *Complete FCode list for NHD Hydrography Features*, https://nhd.usgs.gov/userGuide/Robohelpfiles/NHD_User_Guide/Feature_Catalog/Hydrography_Dataset/Complete_FCode_List.htm (last visited Oct. 9, 2020).

[7] U.S. Fish & Wildlife Service, National Wetlands Inventory, *Wetlands Mapper*, https://www.fws.gov/wetlands/data/Mapper.html (accessed between June 3, 2020 and Sept. 30, 2020).

not retain records that were not classified as "wetland" (i.e., records labeled freshwater pond, lake, or riverine were not included as a wetland in the map).

19. Third, for each map, we used either the World Topographic Map basemap (source: ESRI) or the World Oceans basemap (source: ESRI). The World Topographic Map basemap includes labels for places, such as city and street names. The World Oceans basemap does not include such information. We added the records extracted from the NHD and NWI datasets, as described in Paragraphs 16-18 above, as layers on top of the basemap, to create our final maps.

20. For each map, the area depicted depended on the size of the water we were asked to map by Plaintiffs. For example, for locations where the water of interest provided by Plaintiffs (see Paragraph 11 above) was a water body of smaller size like a creek or stream, we depicted only the portion of the HUC 8 watershed that included the water of interest in our maps. For locations where the water body of interest provided by Plaintiffs was a larger water body like a river, we depicted the entire HUC 8 watershed, and in some cases, two HUC 8 watersheds.

21. Fourth, once we created the maps, we labeled specific waters (such as rivers and streams) and places (such as cities and parks) that were of interest to Plaintiffs and not already labeled on the basemap. Streams were labeled by proper names according to the field "GNIS_Name" in the "NHDFlowline" shapefile from the NHD. Cities were labeled using U.S. Census Bureau data. If we used the World Oceans basemap, we labeled other features such as lakes and parks using information contained on the World Topographic basemap and/or information from Google Maps. If we used the World Topographic basemap, we supplemented existing labels as necessary with information from Google Maps.

Methods for Estimating Acreage and Percentage of Excluded Wetlands

22. The following paragraphs describe how my assistant and I used the St. Mary's Model to estimate the acreage and percentage of wetlands excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule in each watershed described in Paragraph 9(b) above.

23. The St. Mary's Model predicts which wetlands and waterways are protected by the Clean Water Act under three different scenarios: "Most Restrictive," (that is, the most restrictive with respect to jurisdictional protections), "Very Restrictive," and "Less Restrictive." While all model scenarios consider estuarine wetlands protected, the model scenarios differ with respect to classifying non-estuarine wetlands as protected or not. The "Most Restrictive" model scenario imposes the most limited jurisdictional protection parameters. Under the "Most Restrictive" model, non-estuarine wetlands are considered protected by the Clean Water Act if they directly intersect with perennial streams/rivers or lakes at one or more points. Under the "Very Restrictive" model scenario, wetlands are considered protected by the Clean Water Act if they intersect with perennial or intermittent streams/rivers or lakes. Under the "Less Restrictive" model scenario, wetlands are considered protected by the Clean Water Act if they are, in whole or in part, within 100 feet of perennial, intermittent, or ephemeral streams/rivers, lakes, or tributary ditches, or if they intersect the floodplain and are within 1,500 feet of these water bodies.

24. I have reviewed the St. Mary's Model and, based on my expertise and experience, I affirm that the model was created using reliable GIS principles and methods. The model is a simple, proximity-based spatial analysis: it considers where wetlands are located with respect to streams/rivers, lakes, and other water bodies, and the model uses adjacency (that is, whether or

not wetlands intersect with other water bodies or lie within within specific distances from other water bodies) to determine whether the jurisdictional protections of the water bodies extend to the wetlands under different jurisdictional scenarios (see Paragraph 23). The model uses a GIS, which is a database that allows users to store spatial information in addition to other non-spatial data, and thus is perfectly suited to this type of analysis that hinges on the relative locations of wetlands to other water bodies. In addition, the model is built and hosted within a GIS software called ArcMap, which is made by ESRI. ESRI GIS products are the gold standard of GIS softwares and are used by state and federal government organizations and major research institutions. As for data integrity, the model utilizes the highest resolution nationally available GIS datasets produced by federal government agencies. *See* Ex. 2 at 11-12.

25. For this analysis, we ran only the "Very Restrictive" model scenario because, of the three model scenarios available in the St. Mary's Model, the "Very Restrictive" scenario most closely approximates the Navigable Waters Protection Rule because it categorizes non-estuarine wetlands as protected if they intersect with perennial or intermittent streams/rivers, and I understand such wetlands are protected under the Navigable Waters Protection Rule. We did not run the other two model scenarios. The "Most Restrictive" scenario is underinclusive because it categorizes wetlands as excluded from protection if they intersect with intermittent streams, and I understand such wetlands are protected under the Navigable Waters Protection Rule. The "Less Restrictive" scenario is overinclusive because, for example, it categorizes wetlands as protected if they intersect with ephemeral streams, and I understand such wetlands are excluded from protection under the Navigable Waters Protection Rule.

26. Although the "Very Restrictive" scenario is a useful approximation of which wetlands are protected and which wetlands are excluded from protections under the Navigable

Waters Protection Rule, the model limitations should be noted. I understand that some types of wetlands are protected under the Navigable Waters Protection Rule but are not classified as protected in the "Very Restrictive" model scenario[8]; therefore, the "Very Restrictive" model may underestimate the number of protected wetlands (and overestimate the number of excluded wetlands) by failing to include these wetlands that are protected under the Navigable Waters Protection Rule. Furthermore, I understand that the NHD may not fully capture non-perennial streams[9] (that is, the NHD may underestimate intermittent and/or ephemeral streams in an area); therefore, the "Very Restrictive" model scenario may underestimate the number of protected wetlands by failing to include wetlands protected by intersection with intermittent streams that are not captured in the NHD. Furthermore, I understand that the model is highly dependent on the classifications of streams and rivers in the NHD (that is, the model depends on the NHD to determine which streams are perennial, intermittent, and ephemeral, and therefore which streams confer protection to the wetlands abutting them under the model scenarios as described in Paragraph 23). Therefore, any errors in the classification of streams in the NHD might affect the model results. For example, some streams classified by the NHD as intermittent may actually be ephemeral,[10] and I understand that wetlands that intersect with only ephemeral streams are not protected under the Navigable Waters Protection Rule; therefore, the "Very Restrictive" model

[8] For example, I understand that wetlands that are inundated by flooding from a jurisdictional river, lake, or stream in a "typical year" are protected under the Navigable Waters Protection Rule. 33 C.F.R. § 328.3(c)(1)(ii).

[9] See Lang, M., McDonough, O., McCarty, G., Oesterling, R., & Wilen, B. (2012). *Enhanced detection of wetland-stream connectivity using LiDAR*. Wetlands, 32(3), 461-473; and Vanderhoof, M. K., Alexander, L. C., & Todd, M. J. (2016). *Temporal and spatial patterns of wetland extent influence variability of surface water connectivity in the Prairie Pothole Region, United States*. Landscape Ecology, 31(4), 805-824.

[10] *See* Declaration of Michelle Wu, Ex. 3, Army Corps analysis at 6 (explaining that, outside the arid west, ephemeral streams "were generally classified as intermittent or are not mapped" in the NHD, and thus ephemeral streams may be underestimated throughout the country).

may overestimate the number of protected wetlands (and underestimate the number of excluded wetlands) by including wetlands that are not protected under the Navigable Waters Protection Rule.

27. To run the St. Mary's Model, we uploaded the model as a toolbox in ArcToolbox. ArcToolbox is an application integrated in ArcMap that contains processing tools that are used to analyze data.

28. To run the St. Mary's Model, we input the following data: (1) an NHDFlowline shapefile, (2) an NWI shapefile, (3) a Soil Survey Geographic Database (SSURGO) shapefile, (4) a shapefile representing the nearest downstream traditionally navigable water (TNW), and (5) a state boundary shapefile.

29. We input data at the HUC 8 scale. For the first two inputs described in Paragraph 28, we used the NHD and NWI shapefiles for the relevant HUC 8 watershed—the same files we downloaded to create watershed maps (see Paragraphs 16-18 above). For the SSURGO shapefile, we downloaded the SSURGO dataset for the relevant HUC 8 watershed.[11] For the nearest downstream TNW, we extracted the record from NHDFlowline. If the water of interest provided by Plaintiffs (see Paragraph 11 above) was a large river (e.g., the Rio Grande), we used that water as the TNW. If the water of interest was a smaller stream, we used the nearest downstream large river connected to the specified water as the TNW. For the state boundary shapefile, we downloaded state boundary data from the U.S. Census Bureau.[12]

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[11] ESRI, *SSURGO Downloader*, https://www.arcgis.com/apps/View/index.html?appid=cdc49bd63ea54dd2977f3f2853e07fff (accessed between Aug. 9, 2020 and Sept. 10, 2020).

[12] U.S. Census Bureau, *Cartographic Boundary Files – Shapefile*, https://www.census.gov/geographies/mapping-files/time-series/geo/carto-boundary-file.html (accessed Aug. 17, 2020).

30. After inputting the data described in Paragraphs 28-29, we selected the appropriate modeling scenario—the "Very Restrictive" scenario—and ran the model.

31. The model generates several outputs. One output is a table that classifies every wetland as either non-jurisdictional (i.e., excluded from the definition of "waters of the United States") or jurisdictional (i.e., included in the definition of "waters of the United States") under the "Very Restrictive" scenario. Using the statistics tools in ArcToolbox, we analyzed this table and calculated the total acreage and percentage of wetlands that were non-jurisdictional and jurisdictional. We then exported the table from ArcMap to Excel for formatting (see Exhibit 3).

Results of Analysis

32. A table summarizing our estimates of the total acreage and percentage of wetlands that are included in and excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the "Very Restrictive" scenario of the St. Mary's Model, is attached as Exhibit 3.

33. Two maps of the Upper Rio Grande watershed in New Mexico are attached as Exhibit 4. The map on page 1 shows perennial, intermittent, and ephemeral streams. The map on page 2 is a zoomed-in view of the map on page 1, and it shows perennial, intermittent, and ephemeral streams and wetlands in a region near Taos, New Mexico.

34. A map of the Santa Fe and Albuquerque watersheds in New Mexico, which include the Rio Grande near and upstream of Albuquerque, is attached as Exhibit 5. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, and artificial paths.

35. A map of the Rio Hondo watershed in New Mexico is attached as Exhibit 6. The map shows perennial, intermittent, and ephemeral streams.

36. A map of the Rio Chama watershed in New Mexico is attached as Exhibit 7. The map shows perennial, intermittent, and ephemeral streams.

37. A map of the Tulare-Buena Vista Lakes watershed in California, which includes the Kings River near Fresno, is attached as Exhibit 8. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, and artificial paths.

38. A map of the San Joaquin River watershed in California is attached as Exhibit 9. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, and artificial paths.

39. A map of the Middle Muddy Creek watershed in Oregon is attached as Exhibit 10. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, artificial paths, and wetlands.

40. A map of the Agua Fria River watershed in Arizona is attached as Exhibit 11. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, and artificial paths.

41. A map of the Upper Gila River watershed in New Mexico is attached as Exhibit 12. The map shows perennial, intermittent, and ephemeral streams.

42. A map of the San Francisco River watershed in Arizona and New Mexico is attached as Exhibit 13. The map shows perennial, intermittent, and ephemeral streams.

43. A map of the Pecos Headwaters watershed in New Mexico is attached as Exhibit 14. The map shows perennial, intermittent, and ephemeral streams, canals/ditches, and artificial paths.

44. For the following watersheds, in addition to mapping, we also ran the St. Mary's model for the "Very Restrictive" scenario to estimate how much of the wetlands in the watershed

area are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule:

45. A map of the Upper Connecticut River watershed in New Hampshire and Vermont, which includes the Connecticut Lakes, is attached as Exhibit 15. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 3,461 acres of wetlands, representing 10% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

46. A map of the Middle Connecticut River watershed in New Hampshire and Massachusetts is attached as Exhibit 16. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 6,140 acres of wetlands, representing 19% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

47. A map of the Merrimack River watershed in New Hampshire and Massachusetts is attached as Exhibit 17. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 21,376 acres of wetlands, representing 25% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

48. A map of the Blackstone River watershed in Massachusetts is attached as Exhibit 18. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and

wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 3,107 acres of wetlands, representing 16% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

49. Three maps of the Presumpscot River watershed in Maine, which includes Casco Bay and Sebago Lake, are attached as Exhibit 19. The map on page 1 shows perennial and intermittent streams and wetlands. There was no NHD data for ephemeral streams in this watershed. The map on page 2 is a zoomed in view of the area illustrated in the map on page 1 to show Casco Bay, along with perennial and intermittent streams and wetlands. The map on page 3 is a zoomed in view of the area illustrated in the map on page 1 to show Sebago Lake, along with perennial and intermittent streams and wetlands. As shown in Exhibit 3, an estimated 37,645 acres of wetlands, representing 52% of the total wetlands in the Presumpscot watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

50. A map of the Nashua River watershed in Massachusetts is attached as Exhibit 20. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 7,628 acres of wetlands, representing 32% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

51. Two maps of the Charles River watershed in Massachusetts, which includes Cape Ann, are attached as Exhibit 21. The map on page 1 shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in

this watershed. The map on page 2 is a zoomed-in view of the map on page 1 and shows Cape Ann. As shown in Exhibit 3, an estimated 56,738 acres of wetlands, representing 59% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

52. Three maps of the Piscataqua-Salmon Falls watershed in New Hampshire and Maine, which includes the Great Bay, Bellamy River, Cocheco River, and Little River, are attached as Exhibit 22. The map on page 1 shows perennial, intermittent, and ephemeral streams, canals/ditches, artificial paths, and wetlands. The map on page 2 is a zoomed-in view of the area illustrated in the map on page 1 to show the Great Bay, Bellamy River, and Cocheco River, along with perennial, intermittent, and ephemeral streams and wetlands. The map on page 3 is a zoomed-in view of the area illustrated in the map on page 1 to show the Little River and Little River Conservation Area, along with perennial and intermittent streams and wetlands. As shown in Exhibit 3, an estimated 52,718 acres of wetlands, representing 41% of the total wetlands in the Piscataqua-Salmon Falls watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

53. Two maps of the Big Cypress Swamp watershed in Florida, which includes Estero Bay and Audubon Corkscrew Swamp Sanctuary, are attached as Exhibit 23. The map on page 1 shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. The map on page 2 is a zoomed-in view of the area illustrated in the map on page 1 to show part of Estero Bay, as well as perennial and intermittent streams and wetlands. As shown in Exhibit 3, an estimated 990,530 acres of wetlands, representing 81% of the total wetlands in the Big Cypress Swamp watershed, are

excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

54. A map of the Caloosahatchee River watershed in Florida is attached as Exhibit 24. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 59,445 acres of wetlands, representing 43% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

55. Two maps of the Chicago River watershed in Illinois, which includes the North Branch Chicago River, are attached as Exhibit 25. The map on page 1 shows perennial and intermittent streams and wetlands. There was no NHD data for ephemeral streams in this watershed. The map on page 2 is a zoomed-in view of the map on page 1 and shows the North Branch Chicago River. As shown in Exhibit 3, an estimated 10,451 acres of wetlands, representing 86% of the total wetlands in the Chicago River watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

56. Two maps of the Little Calumet-Galien watershed in Michigan, Indiana, and Illinois, which includes White Ditch and part of the Lake Michigan shoreline, are attached as Exhibit 26. The map on page 1 shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. The map on page 2 is a zoomed-in view of the map on page 1 and shows the area around New Buffalo, Michigan, including White Ditch. As shown in Exhibit 3, an estimated 31,851 acres of wetlands, representing 70% of the total wetlands in the Little Calumet-Galien watershed, are excluded

from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

57. A map of the Menominee River watershed in Wisconsin and Michigan, which includes Seagull Bar Natural Area and part of the Green Bay shoreline, is attached as Exhibit 27. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 80,898 acres of wetlands, representing 22% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

58. A map of the Namekagon River watershed in Wisconsin is attached as Exhibit 28. The map shows perennial and intermittent streams, canals/ditches, artificial paths, and wetlands. There was no NHD data for ephemeral streams in this watershed. As shown in Exhibit 3, an estimated 31,336 acres of wetlands, representing 26% of the total wetlands in this watershed, are excluded from the definition of "waters of the United States" under the Navigable Waters Protection Rule, according to the St. Mary's Model.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on October 12, 2020.

Stacy Woods