6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OW-2020-0456; FRL-10018-72-OW]

Notice of Availability and Request for Comment: "National Rivers and Streams Assessment 2013-2014: A Collaborative Survey"

AGENCY: Environmental Protection Agency (EPA)

ACTION: Notice of availability and request for comment on the methodologies used in the National Rivers and Streams Assessment

SUMMARY: This notice announces the availability of the Environmental Protection Agency's (EPA or Agency) final report titled *National Rivers and Streams Assessment 2013-2014: A Collaborative Survey*. The report is based on the National Rivers and Streams Assessment (NRSA) and describes the results of the nationwide statistical survey that was conducted in the summers of 2013 and 2014 by EPA and its state, tribal, and federal partners. The report provides

a snapshot of the quality of perennial rivers and streams across the U.S. during the sampling period. The report also includes information on the changes from the previous river and stream survey in 2008-09. EPA performs NRSA as part of the National Aquatic Resource Survey (NARS) program.

In this notice, EPA is seeking input on all aspects of the design and implementation of the NARS program, including the reference condition-based benchmark approach currently used to assess river and stream quality in the NRSA. EPA is specifically requesting comment on revisions to the calculation of thresholds or benchmarks (referred to as benchmarks hereafter) for assessing human health fish tissue indicators. EPA also requests comment on other approaches in the NRSA report, including the use of "good," "fair," and "poor" classification categories to describe river and stream condition and the method and statistical approaches used for analyzing and presenting differences in water quality among surveys. The input received will be used by EPA to inform potential changes to the NRSA specifically and the NARS program in general.

DATES: Comments on the approach to the NARS program and the NRSA must be received on or before **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER].***

ADDRESSES: You may send comments, identified by Docket ID No. EPA-HQ-OW-2020-0456, by any of the following methods:

- Federal eRulemaking Portal: https://www.regulations.gov/ (our preferred method). Follow the online instructions for submitting comments.
- Mail: U.S. Environmental Protection Agency, EPA Docket Center, Water Docket, Mail Code 28221T, 1200 Pennsylvania Avenue NW, Washington, DC 20460.

- Hand Delivery or Courier (by scheduled appointment only): EPA Docket Center, WJC West building, Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004. The Docket Center's hours of operations are 8:30 a.m. – 4:30 p.m., Monday – Friday (except Federal Holidays).

Instructions: All submissions received must include the Docket ID No. for this Notice. Comments received may be posted without change to https://www.regulations.gov/, including any personal information provided. For detailed instructions on sending comments and additional information on the rulemaking process, see the "Public Participation" heading on the SUPPLEMENTARY INFORMATION section of this document. Out of an abundance of caution for members of the public and our staff, the EPA Docket Center and Reading Room are closed to the public, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via https://regulations.gov/, as there may be a delay in processing mail and faxes. Hand deliveries and couriers may be received by scheduled appointment only. For further information on EPA Docket Center services and the current status, please visit us online at https://www.epa.gov/dockets.

FOR FURTHER INFORMATION CONTACT: Susan Holdsworth, Office of Wetlands, Oceans and Watersheds, Office of Water, 1200 Pennsylvania Ave. NW, Washington, D.C. 20460; Phone: (202) 566-1187; email: holdsworth.susan@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Public Participation

Submit your comments, identified by Docket ID No EPA-HQ-OW-2020-0456, at https://www.regulations.gov (our preferred method), or the other methods identified in the ADDRESSES section. Once submitted, comments cannot be edited or removed from the docket. EPA may publish any comment received to its public docket. Do not submit to EPA's docket at https://www.regulations.gov any information you consider to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Multimedia submissions (audio, video, etc.) must be accompanied by a written comment. The written comment is considered the official comment and should include discussion of all points you wish to make. EPA will generally not consider comments or comment contents located outside of the primary submission (i.e., on the web, cloud, or other file sharing system). For additional submission methods, the full EPA public comment policy, information about CBI or multimedia submissions, and general guidance on making effective comments, please visit https://www.epa.gov/dockets/commenting-epa-dockets.

EPA is temporarily suspending its Docket Center and Reading Room for public visitors, with limited exceptions, to reduce the risk of transmitting COVID-19. Our Docket Center staff will continue to provide remote customer service via email, phone, and webform. We encourage the public to submit comments via https://www.regulations.gov/ as there may be a delay in processing mail and faxes. Hand deliveries or couriers will be received by scheduled

appointment only. For further information and updates on EPA Docket Center services, please visit us online at https://www.epa.gov/dockets/.

EPA continues to carefully and continuously monitor information from the Center for Disease Control and Prevention (CDC), local area health departments, and our federal partners so that we can respond rapidly as conditions change regarding COVID-19.

II. General Information

National Rivers and Streams Assessment 2013-14: A Collaborative Survey is the second in a series of NRSA reports that utilize a statistical survey design to assess the quality of the nation's perennial rivers and streams. The survey data underlying this NRSA report were collected in the summers of 2013 and 2014; as such, the findings in the report represent a snapshot in time and may not reflect current water quality conditions. The key goals of the NRSA report[1] are to describe the ecological and recreational quality of the nation's river and stream resources, how those conditions are changing, and the key stressors affecting those waters. Clean Water Act (CWA) Sections 104(a) and (b) collectively grant the Administrator authority to investigate and report on water quality across the country. NARS data also inform and benefit the national water quality inventory report that EPA prepares for Congress pursuant to CWA Section 305(b)(2).

Using a statistical survey design, 1,853 sites were selected at random to represent the quality of the larger population of perennial rivers and streams across the lower 48 states, from

[1] USEPA. 2013. National Rivers and Streams Assessment 2013-14: Quality Assurance Project Plan. EPA-841-B-12-007. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

large rivers to small headwater streams. Water quality was assessed using physical, chemical, and biological indicators. NRSA sampling conducted in the summers of 2013 and 2014 indicates that, at that time, 30% of the nation's rivers and streams had "good" water quality based on the benthic macroinvertebrate community biological indicator relative to the best 75% of the least-disturbed sites (called "reference sites" and further described in Section III of this notice). "Fair" water quality with respect to the benthic macroinvertebrate indicators was found in 26% of river and stream miles, while 44% of the nation's river and stream miles were considered to have "poor" water quality with respect to such indicators when compared to least-disturbed reference sites. Note that NRSA condition categories ("good," "fair," and "poor") are relative to NRSA reference condition benchmarks, not individual state water quality standards. These classification categories have no regulatory implications; they are not replacements for the evaluation states and tribes conduct on the quality of rivers and streams relative to water quality standards.

The NRSA evaluated three river and stream indicators with potential adverse human health effects. Enterococci, bacteria that indicate fecal contamination, were below the EPA criteria recommendations for pathogens in 69% of river and stream miles. EPA's recommended enterococci criteria are protective of recreational swimming activities. Microcystins, a toxin produced by cyanobacteria, were below the EPA criteria recommendations in 99.9% of river and stream miles. Mercury, polychlorinated biphenyls (PCBs), and per- and polyfluoroalkyl substances (PFAS) were present in some fish tissue samples, with occurrence varying by contaminant.

The NRSA 2013-14 report has undergone peer review and state/tribal review. The peer review process involved the participation of three independent scientists. The comments and response to comments are available on EPA's Science Inventory (https://cfpub.epa.gov/si/). The

state and tribal partners participating in survey implementation also had the opportunity to review the report and provide comments. Six states provided comments, the majority of which were focused on clarifying terms and refining annotations or presentation of figures. Additionally, two states commented on the revised fish community indicator. EPA made several revisions to the report and the figures based on these comments. No changes were necessary for the fish community indicator as the *National Rivers and Streams Assessment 2013-2014 Technical Support Document*[2] addresses the comments, and they did not impact the analytical approach used in developing the fish multimetric index (MMI) at the ecoregional scale.

III. Request for Public Comment on Developing Nationally Applicable Benchmarks for Fish Tissue

With this notice, EPA is seeking input from the public on the approach used for developing applicable benchmarks for fish tissue in the NARS program. EPA applies human health benchmarks to evaluate the potential for health concerns resulting from exposure to certain chemicals through fish consumption. EPA's development of human health fish tissue benchmarks is described in more detail in this section.

For the 2013-14 NRSA, EPA analyzed fish fillet composite samples[3] for three contaminants/classes of contaminants: methylmercury (measured as total mercury),

[2] USEPA. 2020. National Rivers and Streams Assessment 2013-2014: Technical Support Document. EPA 843-R-19-001. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

[3] For the NRSA 2013-14 survey, a composite sample was formed by combining fillet tissue from up to five adult fish of the same species and similar size from the same site. Use of composite sampling for screening studies is a cost-effective way to estimate average contaminant concentrations while also ensuring that there is sufficient fish tissue to analyze for all contaminants of concern. However, average concentrations from composite samples may represent an over- or underestimation of a contaminant as compared to the actual concentration in a single fish sample.

polychlorinated biphenyls (PCBs), and 13 per- and polyfluoroalkyl substances (PFAS). For each contaminant, EPA utilized a different approach for benchmark development as described below.

Methylmercury: EPA developed a human health fish tissue-based ambient water quality criteria recommendation for methylmercury in 2001.[4] For methylmercury, consistent with the 2008-09 NRSA report, EPA used this recommended fish tissue-based criterion as the benchmark to evaluate mercury fish tissue results.[5]

PCBs: For PCBs, EPA has a recommended ambient water quality human health criterion that is expressed as a concentration in ambient water, not as a fish tissue concentration. EPA used the chronic reference dose (RfD) value,[6] cancer slope factor, and equations found in EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories*[7] to calculate fish tissue benchmarks for evaluating the fish tissue results in the 2013-14 NRSA report. EPA developed two human health fish tissue benchmarks for PCBs for the purpose of directly comparing to fish tissue results – one based on carcinogenic effects and one based on non-carcinogenic effects. Except for the revisions of equation inputs for body

[4] USEPA. 2001. Water Quality Criterion for the Protection of Human Health: Methylmercury. Office of Water. Washington, D.C.: EPA 823-R-01-001. Available at: https://www.epa.gov/wqc/human-health-water-quality-criterion-methylmercury

[5] EPA notes that it analyzed the effect of changing equation inputs on the methylmercury benchmark and, even with updated fish consumption rates and use of 75 kg body weight, the benchmark value is unchanged when rounded to appropriate significant digits.

[6] Chronic reference dose values represent the amount of a substance that a human can ingest each day without an appreciable risk of negative health effects during a lifetime.

[7] USEPA. 2000. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories: Volumes 1-2. Office of Water. Washington, D.C.: EPA 823-B-00-007, EPA 823-B-00-008.

weight and fish consumption rate described later in this section, the approach to develop the benchmarks for PCBs was the same as EPA used in the 2008-09 NRSA.

PFAS: For the 2013-14 NRSA report, EPA tested fish tissue samples for 13 PFAS chemicals. EPA does not have the toxicity information available to develop human health fish tissue benchmarks for most of these PFAS chemicals. EPA has developed RfD values for perfluorooctanoic acid (PFOA)[8] and perfluorooctane sulfonate (PFOS).[9] In the summers of 2013 and 2014, PFOA was only detected in 4% of fish fillet composite samples; thus, the Agency did not develop human health fish tissue benchmarks for PFOA to evaluate results for this report. However, during the 2013-14 sampling period PFOS was detected in 99% of fish fillet composite samples. Therefore, EPA utilized the Agency's RfD value for PFOS and the equations found in EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories* to develop human health fish tissue benchmarks to evaluate PFOS results for this report. For the 2008-09 NRSA, which was published prior to development of the Agency's PFOS RfD, EPA used a human health fish tissue benchmark developed by the State of Minnesota.

In using the equations found in its *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories* for developing human health fish tissue benchmarks for

[8] USEPA. 2016. Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA). Office of Water. Washington, D.C.: EPA 822-R-16-005. Available at: https://www.epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos.

[9] USEPA. 2016. Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS). Office of Water. Washington, D.C.: EPA 822-R-16-004. Available at: https://www.epa.gov/ground-water-and-drinking-water/supporting-documents-drinking-water-health-advisories-pfoa-and-pfos.

PCBs and PFOS, EPA revised two of the inputs for use in the 2013-14 NRSA report compared to the 2008-09 NRSA report. EPA made this change to ensure that the Agency's calculations most closely represent expected exposures and to increase consistency between guidance for the fish advisory program and the water quality standards program. Specifically, for both contaminants, EPA used updated body weights and fish consumption rates in the equations for calculating the benchmarks. EPA used the body weight found in EPA's 2011 Exposure Factors Handbook[10] associated with the target population for which the RfD value or cancer slope factor was developed for each contaminant.[11]

EPA previously used the average adult weight of 70 kg as recommended in EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories*. For the 2013-14 NRSA report, EPA used up-to-date body weights: 80 kg for the average adult for the PCB benchmark and 75 kg for pregnant/lactating women for the PFOS benchmark. EPA revised the default fish consumption rate in the equation to better reflect the national average fish consumption rate as opposed to a value based on the U.S. Health and Human Services Dietary Guidelines for Americans 2015-2020[12] which is a nutrition goal-based recommendation. Previously for the NRSA 2008-09 report, EPA calculated the fish tissue benchmarks for PCBs and PFOS based on the Dietary Guidelines of four, eight-ounce meals per month (29.8 grams/day). In this NRSA 2013-14 report, EPA used the national default fish consumption rate of 22 grams/day from EPA's *Estimated Fish Consumption Rates for the U.S. Population and*

[10] USEPA. Exposure Factors Handbook 2011 Edition (Final Report). U.S. Environmental Protection Agency, Washington, D.C., EPA/600/R-09/052F, 2011.
[11] For PCBs, the reference dose value and cancer slope factor were based on non-developmental effects (immune, dermal and ocular effects and cancer) so the target population is the general adult population. For PFOS, the reference dose value was based on developmental effects, so the target population is pregnant/lactating women.
[12] 2015 – 2020 Dietary Guidelines for Americans. 8th Edition. December 2015. Available at https://health.gov/our-work/food-and-nutrition/2015-2020-dietary-guidelines/.

Selected Subpopulations[13] that is used to calculate EPA's national ambient water quality human health criteria recommendations. This revision is a better reflection of actual exposures. The difference in outcome using the 2013-2014 versus 2008-2009 methodology is 40% versus 49% miles of rivers above the benchmark for the PCB cancer benchmark; 17% versus 21% miles of rivers above the benchmark for the PCB non-cancer benchmark; and 3% versus 8% miles of rivers above the benchmark for PFOS.

EPA is seeking public comment on the use of these revised inputs for the development of human health fish tissue benchmarks in the NRSA specifically and the NARS program generally. The input that EPA receives will be considered for future NARS program reports.

IV. Request for Public Comment on Regional Benchmark Approach and other NRSA Methodologies

EPA has employed a nationally consistent approach for developing regional benchmarks to interpret the NRSA data collected in the field and report on the quality of the nation's perennial rivers and streams.[14] EPA sets regional benchmarks to reflect the natural variation across the country using nine major ecological regions, or ecoregions. These ecoregions separate the country into zones of similar topography, climate, and other ecological characteristics (see

[13] USEPA. 2014. Estimated Fish Consumption Rates for the U.S. Population and Selected Subpopulations (NHANES 2003-2010) Final Report. EPA-820-R-14-002. U.S. Environmental Protection Agency, Washington, D.C.

[14] Herlihy, A.T. and J.C. Sifneos. 2008. Developing nutrient criteria and classification schemes for wadeable streams in the conterminous US. *Journal of North American Benthological Society*. 27(4): 932-948.; Herlihy, A.T., S.G. Paulsen, J. Van Sickle, J.L. Stoddard, C.P. Hawkins, and L.L. Yuan. 2008. Striving for consistency in a national assessment: the challenges of applying a reference condition approach at a continental scale. *Journal of the North American Benthological Society* 27:860-877.; Hughes, R.M., D.P. Larsen, and J.M. Omernik. 1986. Regional reference sites: A method for assessing stream potentials. *Environmental Management*. 10:629-635.; USEPA. 1996. Biological Criteria Technical Guidance for Streams and Small Rivers. EPA 822-B-96-001. US Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C.

Chapter 5 of the NRSA 2013-14 report for a description of the nine ecoregions). Data within each ecoregion were screened independently to identify a set of reference sites that represent the *least-disturbed* condition in that ecoregion. The conditions for the least-disturbed reference sites represent the best range of conditions that can be achieved by similar streams within a particular ecological region. EPA's guidance notes that in no instance should any notably degraded condition be accepted as the reference for criteria development. The screening factors include chemical variables, a dam influence index, and other landcover variables such as percent agriculture, population density, and road density as described in the NRSA 2013-14 Technical Support Document.[15] EPA uses the resulting reference sites identified from the screening factors to establish a distribution to describe the least-disturbed condition for some NRSA indicators (e.g., nitrogen, benthic macroinvertebrate MMI). EPA then uses percentiles of the distribution to establish benchmarks. EPA uses percentiles, such as the 75th, to set benchmarks because EPA assumes that higher values at the outer tail of the reference site distribution are likely to have some level of degradation.[16] The percentile approach is applied to the NARS program to reflect uncertainty about the quality of sites within the reference site distribution.

For example, for nutrient indicators, the NRSA selected the 75th percentile of the reference site distribution to establish a benchmark used in the analysis of the survey data to separate sites in "good" condition from sites in "not good" condition. EPA guidance on nutrient

[15] USEPA. 2020. National Rivers and Streams Assessment 2013-2014: Technical Support Document. EPA 843-R-19-001. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.
[16] USEPA. 1996. Biological Criteria Technical Guidance for Streams and Small Rivers. EPA 822-B-96-001. US Environmental Protection Agency, Office of Water, Office of Science and Technology, Washington, D.C. https://www.epa.gov/sites/production/files/2019-03/documents/tech-guidance-streams-small_rivers.pdf; USEPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA-822-B-00-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C. https://www.epa.gov/sites/production/files/2018-10/documents/nutrient-criteria-manual-rivers-streams.pdf.

criteria for rivers and streams recommends use of the 75th percentile or higher of the reference site distribution. The 95th percentile of the reference site distribution was then selected to set a benchmark that subdivided the "not good" sites into "fair" and "poor." This means that some river and stream miles in the "poor" category overlap with the conditions at 5% of the reference sites that are used to define the least-disturbed reference condition. These 5% are the lowest quality among the least-disturbed reference sites. This overlap means that there are sites meeting the established screening factors for "least-disturbed" yet are categorized by the NRSA analysis as being "poor" or "fair." More detailed information about determining reference condition and developing benchmarks can be found in EPA's 1996 Biological Criteria and 2000 Nutrient Criteria Guidance documents for Streams and Rivers[17] and the EPA's NRSA 2013-14 Technical Support Document.[18]

EPA recognizes that this approach, like other approaches, has certain strengths and limitations, and EPA is taking this opportunity to seek feedback on new analytical approaches and refinements to establishing benchmarks and assigning condition categories for purposes of the NARS program assessments. One challenge in applying the reference condition approach occurs when the number and quality of available reference sites is limited in some regions, meaning that some regions have less information/data to define the reference site distribution and subsequent benchmarks. Another challenge in applying the reference condition approach is deciding what percentiles should be used to set benchmarks. Another critique about applying the reference condition approach to nutrients is that it does not provide a direct assessment of stressor-response relationships between nutrients and biological end points. Finally, the approach

[17] *Ibid.*
[18] USEPA. 2020. National Rivers and Streams Assessment 2013-2014: Technical Support Document. EPA 843-R-19-001. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.

results in rivers and streams being defined as good or poor, when they may meet the conditions present at a least-disturbed reference site.

For lakes and reservoirs, EPA has made significant advances in development of a stressor-response model that is based on analysis of empirical data on relationships among nutrient concentrations and environmental responses. This model is the foundation of draft recommendations proposed by EPA for the development of numeric nutrient criteria for the protection of aquatic life, drinking water source, and recreational activities in lakes and reservoirs (*see, e.g.*, Draft Ambient Water Quality Criteria Recommendations for Lakes and Reservoirs of the Conterminous United States: Information Supporting the Development of Numeric Nutrient Criteria; 85 FR 31184, May 22, 2020). A similar model is not yet available for interpreting nutrient conditions in rivers and streams.

EPA is considering revising the ecoregional reference condition-based benchmarks approach for nutrients, biological communities, and physical habitat currently used in the NRSA survey to assess water quality. EPA is interested in ensuring that the data and information provided to the public are based on the best available scientific approaches, are transparent, and best reflect current water quality conditions. To inform EPA in its review of the NRSA, EPA is seeking comment on all aspects of how data are analyzed and reported in support of the NARS program.

While EPA is taking comment on all aspects of the NRSA and the NARS program, the Agency is specifically interested in public input on the following:

1) Are there stressor-response models or other models currently for rivers and streams that EPA should consider when developing future NRSA reports?

2) What other approaches to developing nutrient benchmarks should EPA consider?
3) If EPA retains a reference condition approach to assess river and stream water quality, how could the methodology be revised to better reflect stressor-related impacts on rivers and streams?
4) Benchmarks were first set for the NRSA 2008-09 analysis based on the available pool of reference sites identified during the development of the Wadeable Streams Assessment and the first NRSA (which included river and stream reference sites). For the NRSA 2013-14, data from a larger pool of reference sites was available and was added to the distribution of data used to establish the fish MMI benchmark and three of the four physical habitat indicator benchmarks. However, based on EPA analysts' best professional judgement, the addition of more reference sites did little to change the NRSA 2008-09 benchmarks for the benthic MMI or nutrients, so the NRSA 2008-09 benchmarks for the benthic MMI and nutrients were retained to assess the NRSA 2013-14 data. While stabilizing benchmark values is important for supporting change and trend analysis, EPA also understands the need to periodically review and, if necessary, update benchmarks. Should EPA maintain established benchmarks used for reporting over time? Should there be a fixed set of reference sites that are periodically resampled in support of reevaluating benchmarks or for other analytical purposes? What other information should EPA consider in deciding whether and when to update benchmarks and for making comparisons over time?
5) In addition to using the summer base-flow index period for sampling, how should EPA factor in seasonal, tidal, and other variations, correlated with the quality of water in either the sampling design or subsequent analysis?

6) As described above, the current NRSA approach for setting nutrient benchmarks uses the distribution of nutrient concentrations from regional reference sites and sets regional benchmarks for "good," "fair," and "poor" using the 75^{th} and 95^{th} percentiles of the reference site distribution. Are there other ways in which EPA could establish benchmarks for the NRSA using the reference site distribution? Is it appropriate to automatically designate sites meeting the screening factors for least-disturbed sites as being in "fair" or "poor" condition? Should EPA use percentiles of the least-disturbed sites to establish reference condition-based benchmarks for "fair" and "poor"? If so, how should EPA determine the appropriate percentiles to apply?
7) The EPA also uses a reference condition approach in the NRSA to set benchmarks for the condition of biological communities and physical habitat. Recognizing there are time and resource limitations for conducting a national assessment of rivers and streams, are there alternative assessment approaches that EPA could use to collect and interpret the conditions of biological communities and physical habitat?
8) Are the categories of "good," "fair," and "poor" used in the NRSA (i.e., "good," "fair," and "poor" relative to the least-disturbed reference site distribution in an ecoregion) appropriate and an accurate reflection of water quality conditions? What different or additional descriptors or nomenclature could be used for these condition categories?
9) The NRSA report includes two approaches for establishing benchmarks, EPA or other published values/guidance and the reference condition approach. The indicators related to human health, like the algal toxin microcystin, were evaluated using recommended numeric benchmarks developed by EPA. For nutrients, EPA adapted the reference condition approach methodology recommended in EPA guidance rather than the numeric nutrient criteria

recommendations that EPA published under CWA Section 304(a) in 2000 and 2001. The *Nutrient Criteria Technical Guidance Manual: Rivers and Streams* (USEPA 2000)[19] recommended and described an approach for development of regionally-relevant nutrient criteria based on conditions at reference sites that reflected the least-disturbed conditions that could be expected to occur naturally in an ecoregion. Following publication of this technical guidance, EPA published a series of CWA Section 304(a) numeric nutrient criteria recommendations to serve as default values while states developed reference condition-based criteria.[20] The default values were based on available data because reference site data were not available for EPA analysis. The NARS team adapted the analytical approach recommended in the nutrient criteria technical guidance and developed regionally-relevant, reference condition-based benchmarks for interpreting nutrient data and reporting on the extent of river and stream miles in good, fair, and poor condition. EPA requests comment on whether the Agency should use the CWA Section 304(a) nutrient criteria recommendations EPA published in 2000-2001 for evaluating rivers and streams, rather than the reference condition-based benchmarks developed by the NARS team. More generally, when CWA Section 304(a) criteria recommendations are available for an indicator, should EPA use these criteria rather than alternative approaches to establish benchmarks?

10) The current NRSA methodology complements but does not integrate data collected by states to assess and report on individual impaired waters in accordance with CWA Section 303(d). The NARS program surveys integrate data from some state and tribal partners when the data collection methods are consistent. EPA is interested in increasing integration of state and

[19] USEPA. 2000. Nutrient Criteria Technical Guidance Manual: Rivers and Streams. EPA-822-B-00-002. U.S. Environmental Protection Agency, Office of Water, Washington, D.C.
[20] https://www.epa.gov/nutrient-policy-data/ecoregional-nutrient-criteria-rivers-and-streams-documents.

tribal data in the NARS program. How should EPA consider information and reporting made by states and tribes to improve reporting on the quality of navigable waters in accordance with CWA Section 305(b)? Are there ways that EPA can more efficiently support CWA data collection requirements for national, state, and tribal needs?

11) One of the stated goals of the NARS program and the NRSA is to evaluate changes in water quality based on sampling that occurs every five years. Are the sampling design, the data collected, and statistical approaches used for the NRSA appropriate and robust enough to accomplish that goal? Are there better approaches EPA could use to evaluate changes in water quality conditions across survey cycles?

12) For the NRSA and other NARS, EPA applies a "rotating panel" survey design with partial replacement of sample sites to implement the surveys over time. This design is one in which sample sites remain in the design for three cycles and are then replaced with new sample sites. This process is implemented on a rotating basis such that approximately 25% of the sample sites will be new each cycle. The rotating panel design is one of several approaches used in statistical surveys to track changes over time including: independent samples drawn for each time period (sometimes referred to as "cross-sectional"); "pure panel" surveys where a single sample is drawn and revisited over time (sometimes referred to as "longitudinal"); and "supplemental panel" surveys which are a hybrid.[21] EPA requests comment on what designs, other than the rotating panel survey designs currently in use, the Agency could use to meet the NARS objectives of providing both new status estimates resulting from the most

[21] Fuller, W. A. 1999. Environmental surveys over time. *Journal of Agricultural, Biological, and Environmental Statistics* **4**(4): 331-345; Nieuwenbroek, N. J. 1991. Precision of net change in a rotating panel survey. *The Statistician* 40: 195-201.; Duncan, G. J. and G. Kalton. 1987. Issues of design and analysis of surveys across time. *International Statistical Review* **55**(1): 97-117.

recent survey, and also estimates of changes and trends across surveys. In addition, EPA requests comment on whether the Agency should consider simply plotting data over time rather than estimating changes and trends with each survey.

13) A principal component of the NARS change management process is the EPA/State Steering Committees formed for each resource survey. The steering committees help EPA design, implement, and report on each survey, as described in a series of survey documents and by the Quality Assurance Project Plans for each survey that are posted on the NARS website. EPA also engages with a federal-state Monitoring and Assessment Partnership to seek feedback on NARS. Another venue for broad, multi-stakeholder feedback is the National Water Quality Monitoring Council (formerly a subcommittee of the Department of Interior's Advisory Committee on Water Information), which serves as a forum for valuable information exchange. A peer review process and the documentation on EPA's Science Inventory mentioned above also provide transparency as the NARS program evolves and incorporates new and revised methodologies. EPA is interested in amplifying the public's involvement in the change management process for the NARS program, and requests comment on ways to increase public input on key changes in survey design, prior to finalizing the indicators and protocols for upcoming surveys.

A. How can I get copies of the *National Rivers and Streams Assessment 2013-1014: A Collaborative Survey* report and the National Rivers and Streams Assessment 2013-2014 Technical Report?

You may view and download these reports from EPA's website at http://www.epa.gov/national-aquatic-resource-surveys/nrsa.

B. How can I get access to the data presented in the NRSA 2013-14 report?

The data files used in the analysis to generate the results presented in the report are available on the EPA website at http://www.epa.gov/national-aquatic-resource-surveys/nrsa. The fish fillet composite data are available at https://www.epa.gov/fish-tech/2013-2014-national-rivers-and-streams-assessment-fish-tissue-study. EPA is also preparing an interactive data dashboard presenting most of the indicator results nationally and for several regions or subpopulations at the EPA website link provided above. To provide greater transparency and ability for the public to review and analyze data, EPA is working towards providing the five-year results of NARS online. In the future, EPA will migrate from generating five-year reports to providing all data, summaries, and tables online.

Dated: December 23, 2020

Anna Wildeman,

Acting Assistant Administrator, Office of Water.