



# FSTRAC Newsletter

## FEDERAL-STATE TOXICOLOGY RISK ANALYSIS COMMITTEE

### What Is FSTRAC?

FSTRAC's mission is to strengthen relationships and cooperation among EPA, states and tribes through the exchange of technical information primarily regarding water-related human health and risk assessment and also share information on ecological effects related to water quality criteria. FSTRAC is composed of current representatives from governmental agencies (state, tribal, federal health and environmental agencies, and other regulatory authorities) and representatives from the Association of State Drinking Water Administrators (ASDWA) and the Association of Clean Water Administrators (ACWA). The goal of FSTRAC is to share information that supports the development of well-rounded, integrated approaches to effects assessment, risk assessment, risk management, risk communication, and standard-setting for drinking water, groundwater, and surface water contaminants. Specific objectives of FSTRAC include:

- To foster cooperation, consistency, and an understanding of goals and problems in human health and ecological risk assessment for contaminants in water.
- To allow the exchange of technical information, including toxicity/exposure data and analysis, and methodologies and assumptions related to the development and implementation of regulations, criteria, advisories, and other toxicity values under the Safe Drinking Water Act and the Clean Water Act, and other state and tribal rules and policies as applicable.
- To allow the exchange of information on research priorities and results.
- To share science policy concerns regarding water-related human health and ecological risk assessment.

### Recent Webinars

FSTRAC holds several webinars each year to share information through presentations and discussions regarding human health risk analysis and water quality issues.

#### April 2021

**HECD Priorities in FY 2021 (presented by Ms. Elizabeth (Betsy) Behl, HECD/OST/OW/EPA)** Ms. Behl described the priorities of the new administration, including environmental justice and equity, climate change, and

restoring the role of science. She described EPA OST/HECD's priorities for the fiscal year and accomplishments since late January 2021. Ms. Behl described some of EPA OST/HECD's FY 2021 priorities for work under both the Clean Water Act and the Safe Drinking Water Act including publishing final lake nutrient criteria and working with states on their specific efforts using the new approach; completing external peer review of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) draft aquatic

The purpose of this newsletter is to update Federal-State Toxicology and Risk Analysis Committee (FSTRAC) members on current developments in toxicology, risk analysis, and water quality criteria and standards. This newsletter also provides information on recent FSTRAC webinars and upcoming events. Please share this newsletter with those who may be interested in these topics. If you are interested in joining FSTRAC, please contact the FSTRAC Co-Chairs, Dr. Shamima Akhter ([Akhter.Shamima@epa.gov](mailto:Akhter.Shamima@epa.gov)) or Ms. Katie Fallace ([Katie.Fallace@state.mn.us](mailto:Katie.Fallace@state.mn.us)).

life criteria; and finalizing the toxicity assessment for GenX chemicals. Other important goals for OST/HECD are completing external peer review of the Cooperative Research and Development Agreement (CRADA) Phase I report, updating toxicity values for cancer and noncancer-driven chemicals for the Six-Year Review of Drinking Water Standards, developing the Five-Year Review of the 2012 Recreational Water Quality Criteria, critical elements reviews, biological condition gradient development, and reviewing the biosolids risk assessment approach.

**Incorporating New Approach Methodologies in Risk Assessments (presented by Dr. Maureen Gwinn, CTE/ORD/EPA)** Dr. Gwinn mentioned that New Approach Methodologies (NAMs) commonly include *in silico* approaches, *in chemico* and *in vitro* assays, as well as the inclusion of information from the exposure of chemicals in the context of hazard assessment. She noted that incorporating new technologies and innovations in toxicology can more rapidly and inexpensively screen chemicals for potential adverse effects. Dr. Gwinn described potential challenges with NAMs, including incomplete coverage of important pathways, limited higher order interactions, limited or lack of relevant metabolism, and addressing uncertainties. She mentioned that EPA has made great advances in the development of NAMs for filling information gaps for decision-making and integrating those tools and data streams into chemical risk assessment. Dr. Gwinn noted that EPA has worked with other stakeholders to leverage resources and develop NAMs that can support different regulatory contexts.

**Unregulated Contaminant Monitoring Rule (UCMR 4 & 5) Update (presented by Ms. Rebecca Flynn, OGWDW/OW/EPA)** Ms. Flynn provided an overview of the Safe Drinking Water Act (SDWA) regulatory processes and the UCMR Program. She noted that required assessment monitoring for 30 chemicals (consisting of cyanotoxins, metals, pesticides, a pesticide manufacturing byproduct, brominated haloacetic acid disinfection byproduct groups, alcohols, semivolatile organic chemicals, and contaminant indicators) was performed for UCMR 4 between January 2018 and December 2020, and that the dataset will be finalized in early 2022. Ms. Flynn summarized data from the tenth data release for UCMR 4. She mentioned that

manganese was detected in 2% of the public water systems at concentrations greater than 300 µg/L, and that manganese was detected in 89% of the public water systems at concentrations greater than the method reporting limit of 0.5 µg/L. She noted that the UCMR 5 proposal was published on March 11, 2021 (86 FR 13846) and it includes proposed monitoring for 30 contaminants (29 per- and polyfluoroalkyl substances (PFAS) and lithium).

**Potential of Manganese-induced Neurologic Harm to Formula Fed Infants (presented by Drs. Deanna Scher, Kristine Klos, and Helen Goeden, Minnesota Department of Health)** Drs. Deanna Scher, Kristine Klos, and Helen Goeden mentioned that infants are at the greatest risk for overexposure to manganese because their brains are rapidly developing, they have higher absorption and lower elimination rates than older children or adults, and they have higher fluid intake rates. The Minnesota Department of Health (MDH) analyzed manganese levels in powdered infant formula, evaluated manganese levels in Minnesota's community public water (CPW) systems, and assessed combined exposure and potential risk to formula-fed infants. The presenters noted that concentrations of manganese in formula were up to five times higher than what was reported on the labels. CPW system concentrations commonly exceeded MDH's health-based guidance (>100 µg/L) and formulas also often contained high levels of manganese, potentially leaving no room for contribution from water. They highlighted the need for the EPA and the FDA to work together to address the potential risk from manganese to formula fed infants.

**Overview of the Manganese Health Risk Assessment; Drinking Water Standards for Manganese (presented by Mr. Brandon Kernan and Dr. Jonathan Ali, New Hampshire Department of Environmental Services)** Mr. Kernan and Dr. Ali described the basis of the EPA Manganese Health Advisory Level of 0.3 mg/L, as well as the New Hampshire Department of Environmental Services (NHDES) proposed manganese drinking water value of 0.1 mg/L for infants. They mentioned that by July 1, 2022, NHDES is proposing to require water systems to meet 0.3 mg/L as an enforceable drinking water standard for manganese, and to implement routine public notification to customers when manganese exceeds 0.1 mg/L. The presenters noted that some people in New

Hampshire are currently exposed to manganese at levels not considered safe based on monitoring results and recent assessments performed by NHDES, Health Canada, and Minnesota, and guidance from EPA. The presenters recommended that manganese, in addition to PFAS and arsenic, be considered in the process of evaluating drinking water treatment options.

**Class-Based Assessments for Drinking Water Contaminants with Limited Toxicity (presented by Mr. Bradley Lampe, NSF International)** Mr. Lampe mentioned that NSF proposes total allowable concentrations (TACs) for drinking water contaminants that are extracted from the products that they certify. These TACs are identified by conducting quantitative risk assessments, in which relevant toxicology studies are critically evaluated. However, according to NSF's Standard for Health Effects Evaluation and Criteria for Chemicals in Drinking Water, quantitative risk assessments cannot be performed with limited data (e.g., no mutagenicity or clastogenicity data, no subchronic repeated dose study). In cases where these data are not available, NSF has recently incorporated alternative risk assessment approaches including category-based read-across evaluations, quantitative structure-activity relationship (QSAR) approaches, and threshold of toxicological concern (TTC)-based approaches. During the presentation, Mr. Lampe provided examples of how NSF incorporated these assessment approaches in recent risk assessments for benzothiazole, alkyl-substituted urea compounds, Epoxy F, and perfluorinated carbon tracer compounds.

## September 2021

**HECD Priorities in FY 2022 (presented by Ms. Elizabeth (Betsy) Behl, HECD/OST/OW/EPA)** Ms. Behl described EPA OST/HECD's recent accomplishments, including developing brochures on biological condition gradients (BCGs) and bioassessment program reviews; updating both the FSTRAC and Nutrient Scientific Technical Exchange Partnership & Support (N-STEPS) Online webpages; developing a problem formulation for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) in biosolids; publishing user perception survey methods for nutrient pollution; completing external peer review of draft PFOA and PFOS aquatic life criteria; and developing a cyanotoxins

preparedness and response toolkit. EPA OST/HECD's priorities for FY 2022 are to work on BCG development in Massachusetts Bays, Central Great Plains, and the Pacific Maritime Region; support state-specific evaluations of new lake criteria; release draft PFOA and PFOS aquatic life criteria for public comment; publish the final GenX human health toxicity assessment; draft the five-year review of the 2012 recreational water quality criteria; hold a EPA Science Advisory Board review of biosolids risk assessment approaches; develop updated whitepapers to support an SAB review of approaches to developing MCLGs for PFOA and PFOS; and develop a TSM for assessing risk from non-human fecal sources in recreational waters.

**2021 Update to the Human Health Benchmarks for Pesticides (HHBPs) (presented by Ms. Adrienne Keel, HECD/OST/OW/EPA)** Ms. Keel explained that HHBPs are levels at or below which adverse health effects are not anticipated from one-day to lifetime exposure to pesticides in water. She noted that there are now HHBPs for a total of 430 pesticides and that they reflect the latest scientific information. HHBPs include 24 non-food use pesticides for which oral toxicity data are available. Ms. Keel described the methods that EPA used to derive HHBPs. Next steps include expanding the HHBPs for other pesticides, including cancelled and withdrawn pesticides, and providing future updates to HHBPs by incorporating new information on pesticide toxicity and exposure factors as it becomes available.

**A Look at Fish Consumption: An Opportunity for Collaboration between States, Tribes and EPA (presented by Mr. Michael Bolt, Office of Environment & Natural Resources, Eastern Band of Cherokee Indians)** Mr. Bolt noted that many tribes have treaty rights to harvest fish and hunt outside of reservation lands and that many of these treaty rights date back to the early 1800s. He mentioned that if a tribe has treaty rights to harvest fish for a given area, fish consumption levels need to meet an appropriate standard to protect Native American cultural practices or traditions. Mr. Bolt recommended that care be taken when setting fish consumption standards to include information on more at risk populations (e.g., pregnant women, children), populations (tribes) who are more culturally dependent on that food source, socio-economic factors, and seasonality of harvest. He noted that EPA

has put out a white paper regarding revisions to water quality standards and the protection of tribal reserve rights, and that it will undergo a public comment period and possible revision in the future.

**Microplastics Health Workgroup Findings (presented by Dr. Scott Coffin, California EPA/State Water Resources Control Board (SWRCB))** Dr. Coffin mentioned that plastic pollution has increased exponentially since the 1950s. He noted that the requirements of California Senate Bill 1422 (2018) included defining microplastics, developing a standard methodology, developing a health-based guidance level, monitoring in drinking water for four years, and accrediting laboratories. He noted that SWCRB had worked with other organizations to develop a framework for a health-based guidance level. They also evaluated the feasibility of developing health-based guidance level(s) and found that the quality of the data (i.e., inadequate effects database, unknown effects mechanisms, and incomplete exposure data) does not currently support developing a guidance level for regulatory purposes. They estimated an initial sampling volume that should be used for source waters and also made recommendations for concentrations that should be evaluated in toxicity studies.

**Canadian Regulatory Perspective: Consideration of Toxicokinetic Data in Dose Selection for Toxicity Studies (presented by Ms. Catherine Adcock, Health Canada)** Ms. Adcock provided a general overview of the Canadian regulatory authorities responsible for regulating products, as well as the data requirements for pre-market and post-market products. She noted that evidence-informed approaches are used to identify the dose range for mammalian toxicity studies, and that the choice of dose range can impact the maximum safe starting dose for human clinical trials and points of departure for assessing risks to types of products that rely primarily on animal toxicity data. Ms. Adcock described how toxicokinetic data were used in Health Canada's assessments for two pesticides (afidopyropen and broflanilide). She concluded that toxicokinetic data must be robust enough to clearly define the point at which metabolic processes are overwhelmed and that Health Canada continues to support the role of toxicokinetic data in the selection of doses and design of animal toxicity studies.

**Nitrate in Drinking Water during Pregnancy and Spontaneous Preterm Birth: A Retrospective Within-Mother Analysis in California (presented by Dr. Allison Sherris, Stanford University)** Dr. Sherris mentioned that nitrate was the second most common cause of drinking water violations in California from 2000–2020. Her study aimed to investigate the association between nitrate in drinking water during pregnancy and spontaneous preterm birth. The initial data and study population for her study consisted of nearly all California births from 2000–2011, from which she identified a sample of 1.4 million sibling births. Nitrate concentrations in tap water during pregnancy were estimated using public monitoring records. Dr. Sherris performed a sibling-matched analysis and found that there was a 50% increase in early spontaneous preterm birth (20–31 weeks of gestation) risk among births with medium ( $\geq 5$  mg/L and  $< 10$  mg/L) nitrate exposure and a 250% increase in risk among births with high ( $\geq 10$  mg/L) nitrate exposure, relative to siblings with lower nitrate exposure ( $< 5$  mg/L). Smaller associations were observed between nitrate exposure and spontaneous preterm birth at 32–36 weeks of gestation.

## November 2021

**Release of the Final Human Health Toxicity Assessment for Hexafluoropropylene Oxide (HFPO) Dimer Acid and Its Ammonium Salt (CASRN 13252-13-6 and CASRN 62037-80-3), also Known as “GenX Chemicals” (presented by Dr. Brittany Jacobs, HECD/OST/OW/EPA)** Dr. Jacobs described the final human health toxicity assessment for GenX chemicals. She noted that GenX is a trade name for a processing aid technology used to make high-performance fluoropolymers without the use of perfluorooctanoic acid (PFOA). She described the history and scope of the toxicity assessment for the two major GenX chemicals. Since the 2018 public review draft, the critical study used as the basis of the RfD did not change, but two main factors resulted in changes to the final 2021 toxicity values:

- National Toxicology Program's (NTP's) Pathology Working Group's (PWG's) expert review recommended a different liver effects classification and different endpoint grouping
- Revised uncertainty factors based on new data and new analyses (e.g., NTP PWG)



She noted that the toxicity values (RfDs) are a key building block of risk assessments for these GenX chemicals, along with exposure information and other important considerations. Dr. Jacobs mentioned that

the next step is for EPA to develop a Drinking Water Health Advisory for GenX, as described in EPA's PFAS Strategic Roadmap, released in October 2021.

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## Information from States Developing Guidance for Specific Chemicals

### Criteria Values

#### Minnesota Department of Health (MDH)

MDH has recently completed water guidance for 1,2-dichloropropane. Chemicals currently under full toxicology review include: lithium; *n*-hexane; perfluorohexanoic acid (PFHxA); chlorothalonil and degradate 4-Hydroxychlorothalonil; and 1,2-dibromomethane. MDH has also started reviewing perfluorobutane sulfonic acid (PFBS) as part of its program to re-evaluate existing water guidance values. More detailed information on MDH water guidance values can be found on MDH's Human

Health-Based Water Guidance Table website at <https://www.health.state.mn.us/communities/environment/risk/guidance/gw/table.html>.

MDH's risk assessment team has also completed 12 pesticide rapid assessments in 2021. MDH develops Pesticide Rapid Assessments for pesticide contaminants that do not have MDH water guidance or EPA MCLs using a shortened review process. Documents that more thoroughly describe MDH's Pesticide Rapid Assessment methodology and report the results of these assessments are available at <https://www.health.state.mn.us/communities/environment/risk/guidance/dwec/rapidpest.html>.

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## Technical Information

#### Status of Chapters in EPA's *Exposure Factors Handbook* (2011 Edition)

The latest edition of the entire *Exposure Factors Handbook* was released in 2011, but since October 2017, EPA has begun to release chapter updates individually. This new process allows risk assessors to get the latest information as new data becomes available

and is compiled. EPA ORD is currently working to complete the update to Chapter 15. Human Milk Intake. The estimated time for completion is sometime in FY22. More information on individual chapters can be found here: <https://www.epa.gov/expobox/about-exposure-factors-handbook>.

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## Risk Assessment

#### IRIS Final Assessments Released

EPA IRIS recently announced the release of final toxicological reviews published in August 2021 for ethyl tertiary butyl ether and tert-butyl alcohol. Please visit the following EPA IRIS webpages to access these final assessments:

- [IRIS Assessment of Ethyl Tertiary Butyl Ether \(ETBE\)](#)
- [IRIS Assessment of tert-Butyl Alcohol \(tBA\)](#)

#### Drinking Water

##### EPA's Draft Fifth Drinking Water Contaminant Candidate List (CCL 5)

On July 19, 2021, EPA published the Draft Fifth Contaminant Candidate List (CCL 5) (86 FR 37948). The Draft CCL 5 represents the latest list of drinking water contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, that are known or anticipated to occur in public water systems, and which may require regulation under the Safe Drinking Water

Act (SDWA). In developing the Draft CCL 5, EPA considered the nominations received from the public in response to the agency's 2018 request to identify chemicals, microbes or other potential drinking water contaminants. The draft list includes 66 chemicals, 3 chemical groups (PFAS, cyanotoxins, and disinfection byproducts) and 12 microbes, which were selected from a chemical universe and microbial universe of chemicals used in commerce, pesticides, biological toxins, disinfection byproducts, and waterborne pathogens. EPA released the Draft CCL 5 that includes improvements implemented in the CCL 5 process to public comment. The public comment period closed on September 17, 2021. Copies of the public comments received on the Draft CCL 5 are available in the [docket folder for EPA-HQ-OW-2018-0594](#).

To develop the Draft CCL 5, EPA followed the step-wise process first used to develop the CCL 3. This process was based on recommendations from the Science Advisory Board (SAB), National Academy of Science's National Research Council, and National Drinking Water Advisory Council. The process steps include (1) building a broad universe, (2) screening the universe to identify a Preliminary Contaminant Candidate List (PCCL), and (3) evaluating PCCL contaminants to select the Draft CCL 5. In this cycle, EPA improved the CCL development process in response to comments from the SAB and the public on prior CCLs. These improvements included using new approaches to rapidly screen a significantly larger universe of chemicals for the CCL 5, prioritizing data most relevant to drinking water exposure, and enhancing evaluations of sensitive populations, including children. These improvements resulted in a Draft CCL 5 that can better support prioritization of contaminants for regulatory evaluation and research.

Early next year, EPA plans to consult with the SAB on the Draft CCL 5; a date has not been set. For more information about the SAB consultation, please see the [SAB webpage](#). EPA will consider SAB feedback and public comments in developing the Final CCL 5.

For more details about the CCL 5, please visit <https://www.epa.gov/ccl/contaminant-candidate-list-5-ccl-5>.

### **California Environmental Protection Agency Public Health Goals for PFOA and PFOS in Drinking Water**

The California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA) in July released for public comment the [draft Public Health Goals \(PHGs\) for PFOA and perfluorooctane sulfonic acid \(PFOS\) in drinking water](#). A PHG is the concentration of a contaminant in drinking water that is estimated to pose no significant health risk to individuals consuming the water on a daily basis over a lifetime. PHGs are based solely on health effects and are used to provide scientific guidance to the State Water Resources Control Board (SWRCB) in setting regulatory standards for drinking water. These standards, also known as Maximum Contaminant Levels (MCLs), must be set as close to the corresponding PHGs as is economically and technologically feasible. The proposed PHGs are 0.007 parts per trillion (ppt) for PFOA, based on kidney cancer in humans, and 1 ppt for PFOS, based on cancer in laboratory animals. OEHHA also developed noncancer health-protective concentrations of 3 ppt for PFOA based on liver toxicity in humans and 2 ppt for PFOS based on increased total cholesterol in humans. The comment period for the proposed PHGs closed on October 28, 2021 and the draft PHGs will now undergo external scientific peer review. After the external peer review, OEHHA will consider comments received both from the public and the external peer reviewers, revise the draft document as appropriate, and release the second public review draft for comment. After review of all comments received and any subsequent revisions, OEHHA will post the final PHGs on its [PFOA and PFOS in Drinking Water website](#), along with a companion document containing responses to major comments from the public and external peer reviewers.

### **California Environmental Protection Agency Notification Level Recommendations for Cyanotoxins in Drinking Water**

OEHHA submitted to the SWRCB [notification level \(NL\) recommendations for cyanotoxins in drinking water](#). NLs are precautionary, nonregulatory health-based levels for drinking water contaminants that warrant notification and further monitoring and assessment when exceeded. The NL recommendation

of 4 parts per billion (ppb) for anatoxin-a is based on neurotoxicity. Interim NL recommendations were submitted for saxitoxins (0.6 ppb, based on neurotoxicity), microcystins (0.03 ppb, based on

spermatotoxicity), and cylindrospermopsin (0.3 ppb, based on liver toxicity). These recommendations are currently being considered by SWRCB's Division of Drinking Water.

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## Publications Pertinent to Drinking Water Issues

### Human Health Toxicity Values for PFBS

In April 2021, EPA announced the release of the final *Human Health Toxicity Values for Perfluorobutane Sulfonic Acid (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sulfonate (CASRN 29420-49-3)*. PFBS is a member of a larger group of PFAS. The toxicity assessment is a written summary of the potential health effects associated with PFBS and identifies the dose levels at which those health effects may occur in order to calculate toxicity values. Please visit the *Human Health Toxicity Assessment for PFBS* webpage to access the final assessment: <https://www.epa.gov/chemical-research/learn-about-human-health-toxicity-assessment-pfbs>.

### PFAS Strategic Roadmap

On October 18, 2021, EPA Administrator Michael S. Regan announced the agency's PFAS Strategic Roadmap that describes the agency's approach to addressing PFAS. The roadmap sets timelines by which EPA plans to take specific actions and commits to bolder new policies to safeguard public health, protect the environment, and hold polluters accountable. The actions described in the PFAS Roadmap each represent important and meaningful steps to safeguard communities from PFAS contamination. Cumulatively, these actions will build upon one another and lead to more enduring and protective solutions. For more information on EPA's PFAS Strategic Roadmap, please visit: <https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024>

### Human Health Toxicity Assessment for GenX Chemicals

In November 2021, EPA finalized the human health toxicity assessment for Hexafluoropropylene Oxide (HFPO) Dimer Acid and its Ammonium Salt. HFPO dimer acid and its ammonium salt are also known as "GenX chemicals" because they are the two major chemicals associated with the GenX processing aid technology. GenX is a trade name for a processing

aid technology used to make high-performance fluoropolymers without the use of PFOA. Please visit the Human Health Toxicity Assessments for GenX Chemicals webpage to access the final assessment: <https://www.epa.gov/chemical-research/human-health-toxicity-assessments-genx-chemicals>

### Science Advisory Board Review of Analyses Supporting EPA's National Primary Drinking Water Regulation for PFAS Submitted for Science Advisory Board Review

On November 16, 2021, EPA asked the agency's Science Advisory Board (SAB) to review draft scientific documents supporting EPA's National Primary Drinking Water Regulation (NPDWR) for PFAS (see EPA press release: <https://www.epa.gov/newsreleases/epa-advances-science-protect-public-pfoa-and-pfos-drinking-water>). A *Notification of Public Meetings of the SAB PFAS Review Panel* has been published in the *Federal Register* (86 FR 62526, November 10, 2021). The public meetings of the SAB PFAS Review Panel will be held on Thursday, December 16, 2021, from 12:00 noon to 5:00 p.m. (Eastern Time), Tuesday, January 4, 2022, from 12:00 noon to 5:00 p.m. (Eastern Time), Thursday, January 6, 2022, from 12:00 noon to 5:00 p.m. (Eastern Time), and Friday, January 7, 2022, from 11:00 a.m. to 4:00 p.m. (Eastern Time). Please refer to the SAB website at <https://sab.epa.gov> for details on how to access the meetings.

Under the SDWA, EPA has the authority to set enforceable National Primary Drinking Water Regulations (NPDWRs) for drinking water contaminants and require monitoring of public water supplies. In March 2021, EPA published the Fourth Regulatory Determinations, including a final determination to regulate Perfluorooctanoic acid (PFOA) and Perfluorooctane sulfonic acid (PFOS) in drinking water. The national primary drinking water regulation for PFOA and PFOS Proposed Rule is expected Fall 2022 and the Final Rule is expected Fall 2023.

## Upcoming Events and Conferences

### Upcoming FSTRAC Webinar

The next FSTRAC Webinar is scheduled for spring 2022. Additional details, including the date of the next FSTRAC Webinar, will be provided to FSTRAC members in the coming weeks.

### SETAC North America Annual Meeting – Society of Environmental Toxicology and Chemistry

SETAC will be holding its 43rd annual North America meeting on November 13–17, 2022 in Pittsburgh Pennsylvania. Additional details will be posted to the SETAC website (<https://www.setac.org/>) soon.

### SETAC Focused Topic Meeting

The North America Focused Topic Meeting on Nontarget Analysis for Environmental Assessment will be held on May 22–26, 2022 as a hybrid in-person and online event in Durham, North Carolina. Additional information is provided in the following SETAC Activities flyer: <https://cdn.ymaws.com/www.setac.org/resource/resmgr/events/setac-activities.pdf>.

### SOT Annual Meeting—Society of Toxicology

SOT will be holding their 2022 Annual Meeting and ToxExpo meeting will take place in San Diego, California from March 27–31, 2022. Additional information is provided on the SOT website: <https://www.toxicology.org/events/am/AM2022/index.asp>.

### SRA Annual Meeting – Society for Risk Analysis

SRA will be holding their 2022 annual meeting in Tampa, Florida from December 4–8, 2022. Additional information is provided on the SRA website: <https://www.sra.org/event/2022-sra-annual-meeting/>.

### ASM Microbe – American Society for Microbiology

ASM Microbe will be holding its annual meeting at the Walter E. Washington Convention Center in Washington, District of Columbia on June 9–13, 2022.

Additional information is provided on the ASM website: <https://asm.org/Events/ASM-Microbe/Home>.

### ECOS – Environmental Council of the States

The ECOS will be holding their 2022 ECOS Spring Meeting on April 4–6, 2022. Additional information is provided on the ECOS website: <https://www.ecos.org/events/>.

The ECOS will be holding their 2022 ECOS Fall Meeting on September 19–21, 2022. Additional information is provided on the ECOS website: <https://www.ecos.org/events/>.

### NEWMOA Northeast Conference – Northeast Waste Management Officials' Association

The NEWMOA will be holding their Northeast Conference on the Science of PFAS: Public Health & the Environment on March 29, 2022 at the Sheraton Framingham Hotel and Conference Center in Framingham, Massachusetts. Additional information is provided on the NEWMOA website: <http://www.newmoa.org/events/>.

### EPA ORD Safe and Sustainable Water Research Board of Scientific Counselors Meetings

EPA ORD Safe and Sustainable Water Research will have three Board of Scientific Counselors (BOSC) meetings in December 2021 focused on nutrients and HABs, including algal toxins. Additional information is provided on the BOSC website: <https://www.epa.gov/bosc/bosc-safe-and-sustainable-water-resources-subcommittee-meeting-december-2021>

### EPA ORD Research Planning Cycle for FY23–26

EPA ORD has started a research planning cycle to develop the research needed for FY23–26. Details can be found at this link: <https://intranet.ord.epa.gov/research-planning> (need to be an EPA employee on the VPN). Please consider engaging,