



ENVIRONMENTAL LAW INSTITUTE®

AN INDEPENDENT, NON-PARTISAN ENVIRONMENTAL EDUCATION AND POLICY RESEARCH CENTER.

2021 NATIONAL CWA 303(d) AND DATA MANAGEMENT TRAINING WORKSHOP

THOUGHTFUL STEPS ON THE PATH AHEAD

June 7 - 10, 2021

FINAL PROJECT REPORT & TRAINING WORKSHOP PROCEEDINGS

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United States Environmental Protection Agency**

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Except where specifically noted, the views expressed in the materials prepared and assembled by ELI should not be attributed to the U.S. EPA, or to other federal, state, tribal, or territorial agencies, nor should any official endorsement be inferred.

ELI maintains a companion website for this project: our CWA 303(d) Program Resource Center (<http://www.eli.org/freshwater-ocean/state-tmdl-program-resource-center>).

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I. INTRODUCTION

From June 7 through 10, 2021, the Environmental Law Institute (ELI) convened the *2021 National CWA 303(d) and Data Management Training Workshop: Thoughtful Steps on the Path Ahead*. This event, supported through a cooperative agreement with the U.S. Environmental Protection Agency (EPA), virtually brought together Clean Water Act (CWA) Section 303(d) listing and TMDL officials from all 50 states, the District of Columbia, American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, Puerto Rico, and the U.S. Virgin Islands as well as water quality professionals from the Absentee Shawnee Tribe, the Bishop Paiute Tribe, the Delaware Nation of Oklahoma, the Eastern Band of Cherokee Indians, the Fond du Lac Band of Lake Superior Chippewa, the Iipay Nation Of Santa Ysabel, the Iowa Tribe of Oklahoma, the Kickapoo Tribe in Kansas, the Kickapoo Tribe of Oklahoma, the Lac Courte Oreilles Tribe, the Lac du Flambeau Band of Lake Superior Chippewa Indians, the Little Traverse Bay Bands of Odawa Indians, the Lummi Nation, the Otoe-Missouria Tribe, the Pokagon Band of Potawatomi, the Ponca Tribe of Nebraska, the Red Cliff Band of Lake Superior Chippewa, the Red Lake Band of Chippewa Indians, the Skokomish Tribe, the Snoqualmie Tribe, the Southern Ute Indian Tribe, the Upper Sioux Community, the Ute Mountain Ute Tribe, and the Northwest Indian Fisheries Commission.

The participants learned about and contributed to the process for developing the next iteration of the CWA 303(d) Program Vision; techniques for collaborating across jurisdictional boundaries and with other programs, agencies, and organizations; and ideas and methods for better incorporating environmental justice and climate change considerations into water quality data management, assessment, and restoration and protection activities. Through presentations and breakout groups, participants also gained greater personal familiarity with colleagues from other jurisdictions, representatives of EPA Headquarters and the EPA Regions, a representative of the Association of Clean Water Administrators (ACWA), and a representative of NEIWPC.

As with similar CWA 303(d) events of national scope convened in the spring of most years since 2008, ELI staff intended for this training workshop to provide a forum for program officials to learn about current best practices in listing, TMDL development, and TMDL implementation; to interact with one another; and to share their programmatic ideas and concerns. To ensure a planning process that would culminate in a training workshop attuned to the needs of program implementers in the states, tribes, and territories, ELI staff assembled a Workshop Planning Group (WPG). For six months, the WPG worked through a highly participatory process to develop, shape, and refine the workshop objectives and agenda, the structure and focus of workshop sessions, and the course materials. The WPG was essential in effectively building upon the lessons learned in 2020 about conducting the training workshop virtually.

The four-day event was successful by the metrics of sharing useful information and generating new ideas. This report provides detailed summaries of the plenary sessions and brief overviews of the breakout sessions. Appendices to the report include the training workshop agenda, a compilation of participant evaluations and comments, and information about ELI's companion website.

II. WORKSHOP PROCEEDINGS: SESSION-BY-SESSION DISCUSSION

The following is an overview and detailed discussion of the training workshop, presented session by session. The full training workshop agenda appears in Appendix 1 of this report.

Welcome

Adam Schempp of ELI opened the thirteenth national CWA 303(d) training workshop, and third national water quality data management training workshop, by acknowledging the influence of the ongoing pandemic on the event, but also the silver lining of the virtual setting: more expansive participation. He welcomed the more than 600 registrants, including staff from all 50 states, the District of Columbia, all 5 territories, 23 tribes, an intertribal fish commission, all 10 EPA Regions, EPA Headquarters, ACWA, and NEIWPCC. Mr. Schempp emphasized how vital the participation of the attendees is to the success of these events, using the resiliency demonstrated during the 2020 training workshop as an example. He asked that everyone give it their all throughout week, to ask questions and share experiences. He added that the agenda, from the topics covered to the information formally being presented, was designed to provide solid groundwork for participation.

Mr. Schempp then thanked the EPA for supporting the event and the WPG for their help in putting it together. He gave additional thanks to Emma Gildesgame of NEIWPCC and Jasper Hobbs of ACWA for their extensive help in running the training workshop. He then introduced Radhika Fox for her recorded opening remarks.

Radhika Fox, Principal Deputy Assistant Administrator for EPA's Office of Water, began by noting that it was an honor to speak to the participants of the 2021 National CWA 303(d) and Data Management Training Workshop, thanking them for leading on water issues. She highlighted that great work is being done by states, tribes, territories, and many others.

Ms. Fox then noted that she has never seen water elevated in the national conversation the way it is right now, and that across the country water is a great unifier. She expressed hope that water can unite the nation and help pull everyone out of the current compounding challenges, such as the Covid-19 pandemic, economic recession, racial injustice, and climate change. Ms. Fox said that it is a critical time for water management, adding that she is excited to see how data and science can be harnessed to accelerate progress over the next ten years.

Ms. Fox shared that, in addition to infrastructure, priorities for the Biden Administration include equity, climate, and scientific integrity. She noted that, on the equity front, the administration is working to embed the lived experiences of low-income communities and communities of color into everything they do, particularly in tackling the climate crisis that is hurting communities with environmental justice concerns "first and worst." She explained that the Administration is calling for a whole-of-government approach to these challenges, informed by the wisdom and feedback of communities bearing the brunt of climate stress.

Ms. Fox stressed that, in approaching all of the water sector challenges, from climate resilience to water quality, scientific integrity is integral to success. She quoted Administrator Michael Regan, saying, “Science is back at the EPA.” She emphasized that, for the CWA 303(d) Program, the data that states, territories, and tribes collect is foundational to understanding the health of the waters and to pursuing an integrated, one-water approach to decision-making.

Ms. Fox then highlighted the need to collect data that represents communities with environmental justice concerns, to ensure that work in the water sector is informed by the realities that these communities face. She noted that TMDLs and other plans provide essential guidance for restoring and protecting water quality under the Clean Water Act, and that fully building in environmental justice and climate considerations across all of these areas is key to a holistic, one-water approach.

Ms. Fox declared that now is water’s moment. She expressed hope that, with the 50th anniversary of the Clean Water Act approaching and a vision for the next decade in development, the EPA, states, tribes, and territories can empower those communities that are most affected by impaired waters. She emphasized her belief that, to do so, it is essential to focus collective efforts on incorporating the best approaches into listing and assessment.

In closing, she thanked participants for partnering with the EPA to improve water quality, noting that the CWA 303(d) Program is a model of federal, state, and tribal cooperation, and that she looks forward to working together to continuously improve the model.

Dwane Young, Chief of the Water Data Integration Branch at EPA Headquarters, began by echoing the welcome to everyone. He expressed his appreciation for the workshop combining data and CWA 303(d), explaining that efforts have been made over the past five years, in varying degrees, to do so, and that it makes a big difference and is very beneficial to engage with each other. He noted that both data and CWA 303(d) staff have grown together a little bit over this period, and that he looks forward to the groups continuing to improve each other in that process.

Mr. Young remarked that the preceding year had been very different, bringing a new meaning to “face-to-face” via webinars and virtual meetings, and that the year was not ideal for anyone. He reported that, on the data side, while hard to imagine it happening within the last year, How’s My Waterway was released. He stressed that it was a collaborative effort between the EPA, states, and tribes and that getting the tool out has made a difference in the environmental community. Mr. Young mentioned that the How’s My Waterway page consistently ranks in the top 5 or 10 EPA web pages for number of hits, and that educators are using How’s My Waterway in their K-12 curriculums. He said that environmental practitioners cannot ask for anything better, and that the EPA is pleased with the progress and collaboration.

Mr. Young noted other successes in the past year, including continuation of the ATTAINS tribal pilot, which achieved electronic publication and process streamlining that allowed that data to show up on How’s My Waterway. He added that states are continuing to see the value of electronic reporting, as many are making that switch. He acknowledged that there is work left to do in this area, but that he looks forward to doing that work.

Mr. Young concluded by saying that, despite another year of a remote workshop, he hopes that everyone finds ways to make connections and learn from one another. He encouraged participants, particularly those who have questions or ideas, to find opportunities to make connections by participating in discussion, listening, and learning. Finally, he extended another welcome to the collection of practitioners and thanked ELI for making the workshop possible.

Jim Havard, Chief of the Watershed Branch of the Office of Wetlands, Oceans, and Watersheds at EPA Headquarters, began by welcoming the participants and sharing that the workshop is always a highlight of his year, with the states, territories, tribes, and EPA practitioners from the CWA 303(d) and sister programs meeting to discuss their joint mission of protecting and restoring water quality. He noted that he has been fortunate to attend more than half of the workshops since 2008 as the Chief of the Watershed Branch, which is the home of the National 303(d) Program in EPA's Office of Water. He highlighted some of the successes of the workshops, including identifying and addressing challenges, sharing approaches, building strong relationships, and together forging a path for meeting the shared mission.

Mr. Havard observed that an oft-repeated theme at these workshops is “we do better work with people we know, and we can do our best work with people we know well.” He acknowledged that, while these national workshops, previously held in Shepherdstown, have temporarily moved to “Cybertown,” the week would continue to build relationships. He extended another welcome to all participants from states, territories, tribes, the EPA, and associations working to carry out the CWA 303(d) Program as well as sister programs, including co-hosts from the water data integration community. Mr. Havard added that, though he would miss seeing participants in person and all the one-on-one conversations, ELI and the workshop planning group did a fantastic job developing the agenda for the virtual workshop. He pointed out that a benefit of the virtual format is the ability to invite more people. He said that, given the number of new participants and turnover in the program, it was a good opportunity to emphasize the key role that the CWA 303(d) Program plays.

Mr. Havard explained that, from its place in the middle of the Clean Water Act statutory structure for protecting and restoring water quality, the CWA 303(d) Program serves as a key bridge from water quality standards to implementation. He described how states and territories gather water-quality related data and information and use them to evaluate the nation's waters every two years, to determine whether the water quality standards for the many lakes, rivers, and streams are being met. Mr. Havard went on to describe how states and territories must develop Total Maximum Daily Load (TMDL) plans for waters not meeting standards due to pollutant loadings. He said that these TMDLs provide “the math and the path” for restoring water quality, and that these functions are key for understanding the quality of the nation's waters and laying out the science and implementation approaches for addressing point and nonpoint sources of pollutants, so that the nation's waters can be fishable, swimmable, supportive of aquatic life, and more. He stressed that the CWA 303(d) Program is pervasive and that all around the country are waters and communities that rely on the program for information and strong roadmaps for water quality.

Mr. Havard acknowledged that the prior 15 months of pandemic had presented unprecedented challenges for the world. He noted that the challenges were complex and had come at many levels, including working from home while juggling numerous responsibilities. He expressed pleasure at

hearing that some of the program-relevant activities that had ceased during the pandemic, such as water quality fieldwork and certain in-person public engagement opportunities, were up and running again.

Mr. Havard explained that the CWA 303(d) Program and the water data program have been working together closely, both to communicate their joint programmatic needs and to help develop capacity in states and regions. He praised the timing of this training workshop because the revamped ATTAINS system and How's My Waterway will be integral in analyzing and communicating water quality results.

Mr. Havard concluded with his thanks to those who had helped organize the training workshop and those who would be presenting, adding that everyone showed great resourcefulness and ingenuity in developing the robust agenda, which he believes will facilitate thoughtful steps down the path ahead.

Mr. Schempp then discussed the structure and organization of the training workshop sessions, explaining that, like the 2020 workshop before it, this virtual workshop had been set up so as to imitate an in-person workshop as closely as possible, with breakouts and plenaries. He noted that many sessions would be recorded to enable participants to watch the sessions across drastically different time zones but that, in order to encourage robust and frank discussion, some sessions would not be recorded. To this end, he added, the recordings would be accessible for only two weeks following the event. Mr. Schempp discussed some of the backstops in place to minimize technical difficulties, but he acknowledged that there likely still would be issues. He asked for participants' patience, understanding, and (should the opportunity arise) assistance. He also recommended that participants use ELI's [website for the training workshop](#), which he noted contains most of the presentations and materials from the event.

Mr. Schempp then walked through the agenda for the training workshop. He first explained the meaning of the workshop subtitle, "Thoughtful Steps on the Path Ahead," which was chosen to emphasize a forward-looking focus in contrast to the prior year's reflecting back on the first Vision. He added that the subtitle also acknowledges the importance of giving careful consideration to complex topics, including the workshop's focus issues of climate change and environmental justice. Mr. Schempp described how the first session would address implementation of the CWA 303(d) Program now and into the future, with an emphasis on the Vision and its next iteration. He then explained how the second and third sessions would cover the basics of environmental justice and climate change, respectively, with each session connecting those issues to the work that participants do, such as how water quality management can advance environmental justice and how the realities of climate change can be more completely considered in program functions. He noted that the second and third sessions also would set up the fourth session, a collection of breakouts focused on sharing experiences, learning tools, and brainstorming new ways of better including climate change and environmental justice factors in data management, restoration planning, project implementation, and more. Mr. Schempp acknowledged that no one has all the answers and that the circumstances surrounding these topics varies greatly from place to place, but he expressed hope that participants would learn from each other. He explained that the diversity of topics covered by the breakout sessions on Wednesday and Thursday was intended to allow tailoring of the training workshop's content to the individual participants' needs and interests. He

said that the final session again looks forward, with an eye to the 50th anniversary of the Clean Water Act and communication in that unique moment.

For the training workshop wrap-up, Mr. Schempp invited submissions of poetry, to carry on John Goodin's long tradition of using haikus to summarize the week's proceedings. Also, in a nod to the hiking opportunities in Shepherdstown and the subtitle of the training workshop, Mr. Schempp invited participants to send photos of their favorite nearby hiking and recreation sites, with the pictures being compiled into a montage to help give a sense of the many places being represented during the week. He also invited participants to join in virtually replicating the traditional bonfire gathering on the second night of the training workshop, using the Wonder platform.

Mr. Schempp concluded the welcome by discussing ways to make the most of the virtual workshop format. He encouraged attendees to participate actively in the sessions, acknowledging the limitations of convening virtually but expressing his hope that participants would ask questions, share experiences, and voice opinions using the available technology. He also made suggestions for utilizing the technology to ensure efficiency under time constraints.

Session 1: CWA 303(d) Program Implementation – Present and Future

This session featured four presenters, followed by a question-and-answer period facilitated by Adam Schempp of ELI.

(1) Jim Havard, Chief of the Watershed Branch at EPA Headquarters

Mr. Havard opened the session by recapping the achievements of the CWA 303(d) Program during the pandemic period. He reported that the states and territories submitted 49 impaired waters lists, and that nearly all of them had done so electronically through ATTAINS. He also noted that states in all ten regions collectively submitted hundreds of TMDLs, as well as a number of alternative restoration approaches and protection plans. Mr. Havard noted that, nationwide, states were over 70 percent of the way towards putting plans in place for all of their long-term Vision priorities. He added that the EPA had entirely eliminated its backlog and dramatically improved meeting deadlines to act on new submissions.

Mr. Havard remarked on the aptness of the workshop's forward-looking theme, as the CWA 303(d) Program faces important milestones in 2022: not only the 50th anniversary of the Clean Water Act, but the conclusion of the first long-term Vision period and beginning of the next one. He added that the significant turnover that is typical of the program workforce highlights the importance of capacity building and planning for continuity in the future. He pointed out that the new Administration brings renewed charges to address climate change, environmental justice, and the role of tribes in the program.

Mr. Havard then listed the themes for the CWA 303(d) Program for the coming year: the importance of timely, well-supported decisions; the value of implementable TMDLs and other plans; capacity building for state, territorial, and EPA CWA 303(d) Program staff; addressing

environmental justice and diversity; the role of tribes in the program; and considering climate change in the program.

Addressing the first theme, the importance of timeliness, Mr. Havard mentioned that a nationwide focus for the CWA 303(d) Program was promoting timely submittal of integrated reports (IRs), due in April 2022, adding that IRs are important for many reasons, including in order to accurately report on water quality status in connection with the CWA 50th anniversary and the end of the first Vision period. He described how the EPA has worked with the Environmental Council of the States and ACWA to develop various tools to promote timeliness, such as a template for timely submittal and an EPA memo discussing strategies. He said that the message is being heard: the EPA has received reports that more than 40 states and territories plan to submit a timely list in 2022, which would be a tenfold increase from the last IR cycle.

In addition to timeliness, Mr. Havard highlighted the importance of CWA 303(d) decisions being well-supported. He discussed how litigation continues to be a reality for the program, with the EPA facing around 20 active CWA 303(d) cases, and noted a trend of increasing suits/NOIs asserting constructive submission of TMDLs for individual waterbodies and challenging the EPA's CWA 303(d) list approval decisions on the merits. Mr. Havard previewed the litigation session scheduled for Wednesday, saying that it would focus on, among other things, the importance of supporting decisions with sound technical bases and the notice and comment process -- a process that, in the words of Jim Curtin, allows states and the EPA to know what pitch is coming before it is thrown. As a final thought on the theme of timely, well-supported decisions, he highlighted the importance of early coordination between states and EPA regions to facilitate a smooth process.

Next, Mr. Havard turned to the theme of implementable TMDLs and other plans. He emphasized that TMDLs should not be documents that "sit on shelves and collect dust," and pointed out that there often is an opportunity to choose the TMDLs of most interest to the state and stakeholders, tapping into the energy of and creating buy-in among key stakeholders regarding the science and path forward on implementation. He conceded that this is not an easy task and plugged an upcoming breakout where Regions and states would share examples and ideas for pursuing implementable TMDLs.

Mr. Havard then focused on the theme of capacity building, emphasizing its importance given the significant ongoing turnover in the CWA 303(d) Program. He described how the EPA has focused on developing resources for new staff. He also noted that the EPA is developing a TMDL Academy geared toward states, territories, and tribes that he hopes will be piloted next year, in coordination with the ACWA Watersheds Committee. He also congratulated Rosaura Conde of the EPA Watershed Branch and Jeff Berckes of Iowa on their pre-workshop webinar on the Vision, which he lauded as a great example of how to develop capacity.

Turning to the theme of environmental justice, Mr. Havard explained that it is a priority for the Biden Administration, which issued two Executive Orders in 2021 outlining plans to advance equity for underserved communities through federal programs: the Executive Order on Advancing Racial Equity and Support for Underserved Communities Through the Federal

Government, and the Executive Order on Tackling the Climate Crisis at Home and Abroad. He noted that the EPA's Office of Water was in the early stages of developing an equity plan, which would be shared with relevant stakeholders. Mr. Havard emphasized that environmental justice would be a major theme of this training workshop, with fantastic speakers and multiple breakout sessions on the topic. He expressed his hope that the presentations and discussions provide participants the opportunity to learn from and build off each other's experience.

Mr. Havard continued by conveying the EPA's emphasis on diversity and inclusion. He noted that this effort involved recruiting, retaining, and promoting a diverse workforce, as well as ensuring that employees feel welcome and supported. He shared that the Office of Water had been holding internal listening sessions and discussions about diversity and inclusion, which he found fruitful, and expressed his hope that there can be more dialogue and future opportunities within the national program to learn from each other on diversity and inclusion. He said that it is important to have a workforce that reflects the communities that the program serves, and that significant turnover presented an opportunity to continue pursuing that goal.

Mr. Havard next discussed the CWA 303(d) Program's focus on the role of tribes. He said that the Administration was bringing a renewed emphasis on working with tribes on a government-to-government basis in the implementation of programs. He expressed his pleasure with the strong turnout from tribes for this training workshop, with 23 tribes represented. He explained that promoting implementation of the CWA 303(d) Program regulation on tribal treatment in the same manner as states (TAS) continues to be a key feature of the EPA's work, mentioning that a working draft template that tribes can use in applying for CWA 303(d) TAS was recently added to the EPA's website. Mr. Havard added that EPA Headquarters was working with the regions to enhance their ability to engage with tribes on other CWA 303(d) Program activities that may affect tribal interests. He noted that the week would include a series of sessions focusing on tribes and water quality protection and restoration.

Mr. Havard turned to the theme of climate change, noting that the Administration was placing a strong emphasis on addressing it. He explained that an Executive Order relays the policy of the federal government to deploy its resources to reduce climate pollution; increase resilience to impacts of climate change; protect public health, lands, waters, and biodiversity; promote environmental justice; and spur a flourishing economy through innovation and climate-friendly technologies. Mr. Havard said that, to successfully meet these challenges, all programs would need to be thinking about climate change and engaging stakeholders. He previewed several upcoming sessions on climate change, covering topics from the ongoing climate change activities at the Office of Water level to considering climate change for specific pollutants in the listing and TMDL contexts. He reported that the national CWA 303(d) Program and regions had coordinated efforts in recent months to evaluate the different ways that climate change has and can arise in the TMDL context, and that they look forward to opportunities to discuss, share, and learn with states, territories, and tribes at this workshop.

Mr. Havard then indicated that the remainder of his remarks, and the rest of the session, would focus on two very significant priorities for the CWA 303(d) Program: closing out implementation of the first long-term Vision on a strong note and developing the next Vision to be in place by the fall of 2022. He said that the national CWA 303(d) Program has been

pleased with the process and implementation of the Vision established in 2013, which had provided a fruitful collaborative framework for implementation of the CWA 303(d) Program. Mr. Havard opined that the goals of the Vision had served the program well, with the focus on state prioritization; choosing the right tool for the situation; and engaging, integrating, and assessing in ways that promote efficient use of resources, buy-in, and adaptive management. He noted his wish that stakeholders would look at the TMDL process as something that everyone can agree to, prompting stakeholders to get together to discuss their local waters, including what is needed technically to achieve uses and how parties can work together to establish implementable TMDLs.

Mr. Havard explained that the national CWA 303(d) Program had oriented much of its work around the Vision, including by: coordinating with states and territories on developing guidance and FAQs on several Vision goals and related measures; developing compendia on key Vision activities; sponsoring national and other trainings centered on Vision goals; and working with regions on their essential function of assisting with states' plan development. He took care to highlight that the EPA has developed and worked closely with states and others on using tools, such as the recovery potential screening tool, for prioritizing waters for protection and restoration. He mentioned that the EPA was updating these tools to help users better prioritize for environmental justice, climate, and other considerations, and plugged a presentation on these tools and improvements coming later in the week.

Mr. Havard then turned to the next Vision. He noted that the ACWA Watersheds Committee had done great work collecting observations and recommendations and gave kudos to Traci Iott and Jeff Berckes, the state chairs of the Committee, and ACWA's Jasper Hobbs for developing a well-constructed, carefully thought-out paper. He thanked the Committee for inviting EPA staff to participate in discussions with states as the paper was developed.

He announced that, later in the session, Rosaura Conde of the Watershed Branch would discuss important themes and processes for the next steps of the next Vision. He stressed that an important feature moving forward should be clear messaging and communication from the national CWA 303(d) Program, which would be a focus for him personally. He emphasized that he was looking to have a highly collaborative process with states, territories, and tribes for developing the next Vision, as was the process for the first Vision. Mr. Havard said that he anticipated that the next Vision would continue to focus on state prioritization and include other elements of the first Vision. He suggested that TMDL development continue to be the primary mechanism for restoring waters. He acknowledged that TMDL production has dropped in some states. Mr. Havard reiterated that TMDL development is a key program requirement, that constructive submission lawsuits were active, and it is important to continue to prioritize development of TMDLs and other plans that are designed for effective implementation. He mentioned that he also was looking for CWA 303(d) listing and assessment to remain part of the Vision, and that the national CWA 303(d) Program was very interested in determining how best to integrate key topics of environmental justice and climate change into discussions regarding the next iteration of the Vision.

One participant asked where restoration planning fits in the Vision. Mr. Havard responded that it is a key part of the Vision in terms of TMDL development, as the statutory tools for restoring water

quality. He added that alternative restoration plans are another tool that can be used in advance of TMDL development to try to achieve water quality standards and potentially even avoid the need for a TMDL. He also reiterated that the themes of integration, engagement, and adaptive management can help promote successful restoration. Another participant asked whether the memos and Executive Orders that Mr. Havard had mentioned could be compiled and posted on the training workshop website. Mr. Havard agreed that such was a good idea. Mr. Schempp said that ELI would work on getting those items posted.

(2) Jeff Berckes, TMDL Program Coordinator, Iowa Department of Natural Resources

Mr. Berckes began by thanking the many people participating in the training workshop around the country and explained that he and Ms. Iott would be providing an overview of what the ACWA Watersheds Committee had been doing since the previous training workshop. He recalled that the theme of the 2020 training workshop was hindsight and that participants had focused on their accomplishments during the 2013 Vision. Mr. Berckes explained that, from that event, the Committee saw an opportunity to capture whether states were interested in renewing the Vision and what they needed to be more successful. He told participants that the document ACWA assembled is a state-perspective reflection on all of those things, and he mentioned that it could serve as a good primer for anyone interested in learning more about the Vision.

Mr. Berckes observed that significant staff turnover had occurred during the 2013 Vision years, with many people now working in the CWA 303(d) Program who were not around for the 2013 Vision's creation. He said that this situation creates an opportunity for some re-engagement and education on the history of the Vision. Mr. Berckes noted that the process had started in earnest in 2011, meaning that it was now a long-standing piece of the CWA 303(d) Program. He described the six goals established in the Vision: prioritization, assessment, protection, alternatives, engagement, and integration. He pointed out that one of the main features of the Vision was to create an operational framework to replace pace, which was used to measure program process as a result of litigation. He summarized the content of the Perciasepe Memo and said that it did not completely reflect the good aspects of the tools that are used. Mr. Berckes noted that the Vision allowed for increased flexibility across all areas, recalling that "flexible" was the one word he heard most. He said that the Vision allowed for some silos to come down and encouraged conversations between different Clean Water Act programs about working toward mutual benefits.

Mr. Berckes observed that, over the lifetime of the 2013 Vision, from the big-picture perspective, many of the original goals were accomplished. He noted that every state had set priorities, but that was not all. He described growth in the concept of protection work and the investigation into alternatives by many states, as well as progress on engagement and integration, particularly recently. Mr. Berckes said that, notwithstanding the progress, at the end of a planning period, it is always necessary to reflect on new considerations and future challenges and to update aspects that may be outdated or outmoded. He acknowledged that there are things that need to be cleared up and/or added to ensure the CWA 303(d) Program is responsive to the resources and the people that use them.

Mr. Berckes next provided a brief overview of the timeline of the re-visioning process to date. He explained that, during the 2020 training workshop, participants collectively identified a need for determining “what’s next.” After that event, he continued, the ACWA Watersheds Committee began planning a recommendations document that would try to capture state perspectives, which was then pitched to and approved by the ACWA board in July of 2020. Mr. Berckes said that the ACWA Watersheds Committee drafted portions of the document between August of 2020 and February of 2021. He told participants that they then held small group sessions with states who had expressed interest in the draft document as well as EPA regional representatives and Ms. Conde, who he credited with providing great insight and being a terrific resource.

Mr. Berckes relayed that, in March, at ACWA’s mid-year meeting, the Committee shared their progress on the draft document and solicited comments. He described the document as “a snapshot” of “select accomplishments” and the status of implementation efforts, emphasizing that it is not comprehensive nor up-to-date to the present moment -- rather, the Committee was looking for the big-picture accomplishments. He suggested that anyone who was hearing about this document for the first time use it as a good starting point for orienting themselves in the Vision process.

Mr. Berckes highlighted some of the document’s recommendations: (1) renewing the Vision, for which there was overwhelming interest; (2) nomenclature considerations (e.g., “elements” vs. “goals”), including to make the language more inclusive (e.g., “programs” vs. “states”); (3) elimination of timelines for Vision Goals, except for prioritization, which is the foundation for implementing all of the goals and provides an opportunity to reflect on progress. He added that the document suggests a ten-year end date for the next iteration of the Vision, although some programs had suggested a shorter term. Mr. Berckes then highlighted a few more specific recommendations: combining integration and engagement into one goal because of the significant amount of overlap, changing the term “alternatives” to “adaptive resource management strategies (ARMS),” and changing the term “assessment” to “evaluation.”

Mr. Berckes noted that he and Ms. Iott regularly heard that prioritization seemed different from the other Vision Goals, where prioritization essentially “*is* the game,” whereas other goals will be used by programs in different ways or not at all. He recounted how he and Ms. Iott discussed these comments and contemplated other ways of visualizing the Vision: with prioritization at the center, serving as an anchor, and the other goals presented around it to reflect what else programs can consider. Mr. Berckes said that “flexibility” was another word that they frequently heard, and that flexibility remains key, as time and time again programs have appreciated flexibility to implement *their* version of the Vision. He reflected that, as Co-Chair of the Watersheds Committee, he learned that many times when he thought that he had it all figured out, he came to learn that what he understood was only part of the whole picture, and that there are many needs for flexibility within this framework.

Mr. Berckes concluded his comments by suggesting that advancements in tools, alternatives, and protection efforts were significant improvements in the 2013 Vision period, but more is possible. He explained that the ACWA document contains a graphic about ARMS, which shows how programs can approach water quality issues with an adaptive strategy that leads to

water quality standards attainment before more significant measures are employed. He said that this graphic is a way to visualize the ARMS idea, and how it is not different or separate than a TMDL in terms of one being better than the other; it is just another tool providing flexibility to address water quality issues.

(3) Traci Iott, Supervising Environmental Analyst, Connecticut Department of Energy and Environmental Protection

Ms. Iott began her remarks by highlighting another key takeaway in feedback from states: change the “Assessment Goal” from the 2013 Vision to the “Evaluation Element.” She explained that the Assessment Goal was basically focused on gathering information and data to support the different timelines and flow of work through the CWA 303(d) process. Ms. Iott identified three primary data needs of the CWA 303(d) Program: to support the listing process; to support TMDL or other plan development, as the data needed for a water quality plan is typically at a different scale than for assessment; and to support effectiveness monitoring to improve implementation. She acknowledged that the collection of water quality data is still important and necessary, but that, through the Vision process, states had identified other ways to gather information and do evaluations. She said that an expansion of the Assessment Goal seemed necessary in order to incorporate other types of data.

Ms. Iott identified GIS as one example of other types of data, noting that it is a critical tool that many programs use for things like evaluating stressors in the watershed -- where they are located, how that relates to water quality information, and for building relationships that help in understanding what is being observed in the environment and where programs might need to go. As another example, she mentioned tools that can process data to reveal relationships between water quality, stressors, and sources, which states can use to evaluate those relationships and develop plans. Ms. Iott also reported that there seems to be a renewed focus in water quality modeling and water-quality based planning. She suggested that the title “Assessment Goal” is too restrictive, and thus the Committee’s recommendation was to rename it the “Evaluation Element,” to reflect an expansion beyond traditional monitoring.

Ms. Iott then noted the interest that they had heard in expanding the Vision to acknowledge climate change and environmental justice. She conceded that it was a gap in the 2013 Vision, as programs had been focused only on how to grow and change while staying within the confines of the law. Yet, Ms. Iott continued, it is now time to look for aspects of the CWA 303(d) Program that can be improved and used to address overarching issues. She said that the ACWA document included a recommendation to incorporate climate change and environmental justice in the next iteration of the Vision.

Ms. Iott went on to briefly recount the Committee’s discussions of program measures, which are important in terms of establishing accountability even where priorities are flexible and program-specific. She said that the Committee had included recommendations in the ACWA document, such as agreeing on measures before programs set their priorities, since understanding how success will be measured is a key piece of identifying priorities and making commitments. Ms. Iott added that ATTAINS also is related to priorities. She noted that Mr. Young’s staff and the data side of programs had worked hard to develop a new, improved

online process for sharing information -- both between programs and with the EPA, as well as with the public. Ms. Iott acknowledged that there had been growing pains, and that the process had highlighted the need for states to do a critical review of their information, to make sure that it is reported correctly to the current ATTAINS platform. She emphasized the importance of this review because the public sees the information in How's My Waterway.

Ms. Iott concluded by reporting that the Watersheds Committee was working through comments and trying to wrap up the ACWA document, which would then be presented at the ACWA mid-year meeting in August. She added that the Committee stands ready to collaborate with the EPA to move the process forward.

(4) Rosaura Conde, Environmental Protection Specialist, Watershed Branch at EPA Headquarters

Ms. Conde explained that her role in the session was to talk briefly about what the Vision process will look like in the next year or so, in keeping with the training workshop theme of thoughtful steps on the path ahead. She shared the fact that EPA staff had not fully involved their management yet, meaning that the timeline of events was only a sketch. Ms. Conde echoed the previous speakers' thanks to participants and added that she welcomed, and was counting on, their active participation. She recognized that participants had different levels of knowledge about the Vision and said that she wanted to ensure that no one felt out of the loop. She invited participants to contact her with questions and to connect with EPA staff about what the Vision means and how it works. Ms. Conde stressed that this session would not be the last opportunity to discuss these topics, that there would be multiple sessions during the training workshop about specific aspects of the Vision and what is being planned. She encouraged participants to put all of their ideas on the table, since it typically takes looking at many ideas to identify the great ones.

Ms. Conde explained that the EPA's side of this visioning process ultimately would culminate in developing a memo for the post-2022 period, similar to the 2013 Vision memo. She said that the first step in the process is outlining some principles as key things that the CWA 303(d) Program is looking to advance, and that the EPA was outlining some of those items, with reference to the ACWA document and others. Ms. Conde noted that they are striving to provide engagement opportunities around August or September. After that, she added, the EPA expected to start drafting the memo, through the end of 2021. She clarified that a key part of that process would be working with ELI and other partners to put on a Vision Summit, tentatively scheduled for October 2021, to provide a platform for discussions that would lead into the drafting. Ms. Conde indicated that the EPA anticipated having a draft of the memo by early in 2022, and an iterative review by states, tribes, territories, and stakeholders would happen between January and May of 2022, leading up to signature and issuance of the memo no later than September 2022, with outreach and supplemental materials also going out in the fall.

Ms. Conde remarked that she had taken note of Mr. Berckes' comment that "prioritization is the game," and that her next slide reflected that idea. She highlighted the connection between the 2013 Vision period and planning post-2022, which she said encouraged programs to think

about their remaining work under their priorities through 2022 and the opportunities and obstacles that affect what they might be able to accomplish. Ms. Conde urged participants to reflect on what worked and what did not in the 2013 Vision period, and take that into consideration in approaching planning for post-2022. She mentioned that it was a good time to talk with partners about where synergies and efficiencies might be, encouraging programs to communicate generally -- with partners, with the public, and with their management. Ms. Conde stressed the particular importance of keeping the public informed and suggested thinking about upcoming opportunities for communication, including ones that may arise in connection with the 2022 IR cycle, as programs set off on the post-2022 path. She said that, by focusing on coordination and communication early and doing this “pre-work,” submitting priorities would be much easier, when that time comes. She explained that several upcoming sessions of the training workshop would be about methods and tools that can be used for long-term prioritizing.

Ms. Conde concluded her remarks by briefly addressing measures, noting that the EPA had many conversations about measures occurring in tandem with those about the memo. She shared that one of their groups had started identifying possible metrics moving forward, and that the EPA will have some type of accountability in the form of metrics for post-2022. Ms. Conde added that the EPA was planning a call with the ACWA Watersheds Committee in July to start sharing those ideas more broadly.

A participant asked Mr. Havard about his statement that the EPA expected a tenfold increase in on-time IR submissions, whether he thought that would actually happen. The participant added that he represented one of those states that would like to be able to submit on time, but that there are many things that likely will get in the way. Mr. Havard responded that, while only four programs were on time last cycle, he believed that they can get to over 40, and that some of the information that he has received suggested that they would. He mentioned that the EPA had released an IR memo highlighting some strategies for timely submission, including combining late cycles with the 2022 cycle.

Another participant asked about using aspirational prioritization frameworks versus a “sure-thing waters” approach, and whether the EPA and ACWA had positions on which approach is better. Ms. Conde answered that she did not consider one to be better than the other, but said that they were asking programs to take a broad look at their aspirations and take thoughtful steps from there. She added that there has been significant feedback regarding the ability to adaptively move through priorities over time, recognizing that ten years is a long planning period, and said the EPA was taking that into account in drafting the memo and developing measures and metrics. Ms. Iott added that they had heard about a variety of recommendations being made to states, with some being told to make sure that they would hit 100 percent, while others were selecting state priorities based on what was appropriate and of interest to the public and their environmental programs. She said that, from the outset, prioritization was foundational in transitioning away from pace; it was aspirational by nature, in that states were changing how they were doing things, and they were going to do their best, but that -- in the words of Tom Stiles from Kansas -- “failure is an option,” because things do come up over a long period, and the ability to make some adjustments over time is one part of the “story of your program.” Ms. Iott added that managing and changing programs to bring in new approaches like ARMS and protection planning also had been aspirational. She summed up her

answer as, “it remains both,” but expressed hope that the conversations being had over the next year would clarify the focus points for setting priorities and providing that elasticity between setting priorities and the reality of needing to make changes. Mr. Havard said that he agreed with everything that Ms. Conde and Ms. Iott had said and added that he thought aspirational was a strong way to go. He said that he would not want a low number of priorities chosen just to get to 100% for a measure. He added that it is important to shoot high for goals; but he acknowledged that everyone wants more clarity on making adjustments and merging long-term thinking in prioritization with the realities states are facing. Mr. Havard explained that the EPA would look for ways to determine how best to set that metric moving forward, so it can be clear and allow for adjustments and flexibility. He noted that good ideas were coming out of the “mini brain trust” -- a small workgroup of EPA and state staff -- on how to do that.

A participant asked how the results of the 2013 Vision have compared with the pre-Vision period, with respect to TMDL development rates and what percentage of the 2013 Vision priorities were completed? Mr. Havard replied that, as to the second question, over 70 percent of the identified priorities had plans in place, counting partial credit for plans in development. He then addressed the first question by saying that, in terms of TMDL production, it was becoming harder to measure TMDLs with numbers because of the variety of approaches states are using for assessment units, but that the EPA is continually working on ways to count them. Mr. Havard said that, looking back at the 2013 Vision, using catchments was one way to try to address that issue of looking at areas covered by TMDLs, as opposed to numbers of TMDLs. He said that he did not have a specific number of TMDLs over the past few years, but that there appears to have been a trend of declining TMDL production even before the Vision. Mr. Havard also emphasized that the Vision has focused on looking at the right tool, developing TMDLs but also considering whether alternatives can meet a need before a TMDL is developed. He concluded that it was a mixed bag in terms of whether programs’ numbers had gone up or down since the Vision, but that he continued to think programs should focus on TMDL production as the primary means for restoring water quality under the statute.

Ms. Iott then suggested that a more expansive view of that information should be used. She noted that the Vision was not set up for programs to hit a certain number in their TMDL development every year, and that the EPA wanting states to hit 85% of TMDLs by August 2021 was really harkening back to pace, whereas the Vision established goals to be achieved by the end of the Vision period, so you might not see a linear relationship between time and TMDL production. She suggested that the best measure of how a program is doing is the conversation between states/regions and EPA regional staff, because EPA staff should understand what is in development and all of the moving pieces.

Another participant asked about lawsuits and TMDL production under the 2013 Vision. Mr. Havard said that the lawsuit reference in his remarks had been meant as a reminder about this key requirement and the importance of prioritizing TMDL development. He also highlighted the importance of using the right framing when talking about alternatives and TMDLs: programs are not doing alternatives *in lieu of TMDLs*, but as an approach towards getting to water quality *on the way to TMDL development*, as needed.

Session 2: Environmental Justice

This session featured three presenters, followed by a panel discussion. The session was moderated by Bonita Johnson of EPA Region 4. Ms. Johnson began the session by highlighting that the Biden Administration has made environmental justice and equity areas of emphasis, and that the EPA is working to integrate these focus areas into its programs. She expressed her excitement in having a trailblazer at the workshop to provide his perspective on environmental justice and on how it can be implemented throughout EPA's, states', tribes', and territories' programs, and she proceeded to introduce Mr. Charles Lee.

(1) Charles Lee, Senior Policy Advisor for Environmental Justice, Office of Environmental Justice at EPA Headquarters

Mr. Lee began his presentation with a brief introduction of environmental justice and an overview of some of the major events that gave rise to the environmental justice issue in the United States. He shared two prominent definitions of the term "environmental justice": "Fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income, in the development, implementation and enforcement of environmental laws, regulations and policies," as defined by the EPA; and "Refers to those cultural norms and values, rules, regulations, behaviors, policies, and decisions to support sustainable communities where people can interact with confidence that the environment is safe, nurturing, and productive," as defined by Professor Bunyan Bryant. Mr. Lee noted that Professor Bryant's definition spoke more to the normative values in society, as well as a vision about sustainability and sustainable communities. He explained that environmental justice encompasses multiple issues with many facets, including but not limited to the environment, health, climate, food, the economy, transportation, energy, housing, and green space.

Mr. Lee then addressed the common question of what environmental injustice "looks like." He stated that hundreds of empirical studies have confirmed that minority, low-income, and tribal/indigenous populations are disproportionately located near pollution sources of all types. This point led to his referencing the environmental justice "arc of history," starting with community issues and protests in many parts of the country, and now to the pinnacle of the U.S. policy agenda through the Biden Administration's priorities.

Mr. Lee highlighted that, prominent among the early community struggles was the struggle in Warren County, North Carolina, where around 500 people were arrested protesting the siting of a PCP landfill. He explained that Warren County is an example of how environmental justice emerged as a convergence of civil rights and environmentalism, how one trajectory within the community has been the empowerment that has taken place as a result of struggles around environmental injustice, and how vibrant the political activism has been since Warren County, including through Congresswoman Eva Clayton. He paraphrased a quote from Burwell that, as a result of Warren County, African Americans determined they would be in control of their own destinies.

Mr. Lee described how, on the heels of Warren County, came a Government Accountability Office study on hazardous waste landfills in the Southeast: The *Toxic Wastes and Race* report

(1987). According to Mr. Lee, this report spurred academic research, interest, and action on the part of governments; the First National People of Color Environmental Leadership Summit; and other environmental justice developments culminating in the signing of Executive Order 12898 by President Clinton in 1994.

Mr. Lee noted that, even though Executive Order 12898 was signed in 1994, it was not until twenty years later that government agencies, particularly the EPA, started to have an approach or strategy that laid some groundwork for integrating environmental justice into regulatory processes. He said that the delay was because “this is a difficult thing.” He added that, under Presidents Obama and Biden, there has been a comprehensive suite of tools, such as screening, mapping, guidance and rulemaking, permitting and enforcement, and NEPA, and President Biden’s 2021 executive orders “take it to an entirely new level.”

Mr. Lee reflected that the trajectory from the early days of environmental justice to today is remarkable. He noted that, when he and others first started working on environmental justice, it did not even have a name, but now there is a comprehensive approach to understanding the built, natural, and social drivers; the impacts; proactive strategies including engagement, support, capacity building, regulatory measures, and collaborative approaches; and now a firmer goal toward targeted investment as well as analytic tools and measures. With regard to current analytic tools, Mr. Lee focused on two environmental justice mapping tools, both of which combine environmental impact analysis and social impact analysis. He explained that CalEnviroScreen produces a cumulative score ranking all census tracts in terms of cumulative impacts of environmental pollution and social factors; and the EPA’s EJSCREEN does the same thing in terms of binding environmental and demographic indicators, but it does not produce a cumulative score.

Mr. Lee said that another way of looking at these issues is to look at the location of toxic sites and their proximity to communities. He showed graphs depicting how, as of 2017, there are continued and significant disparities. Turning to water issues in particular, Mr. Lee noted that one way to look at this problem is through drinking water violations, and that a 2018 NRDC report (*Watered Down Justice*) showed the significance of this measure in terms of water quality, water quantity, and vulnerability. He also touched on the impacts of COVID and the pandemic’s relationship to water issues, particularly as it impacts American Indian and Alaska Native people.

Mr. Lee went on to describe how California established, by law, a human right to water in 2012. He said that many communities in low-income areas in California are disproportionately affected by drinking water contamination, which is a function of aging infrastructure and unreliable or increasingly troubled sources of water, as well as unaffordable water rates. Mr. Lee explained that, while he did not have time to enumerate all of the significant activities that had developed as a result of the 2012 law, he did want to point out the fact that California established a system for assessing progress in terms of environmental impacts, particularly in terms of exposures and compliance; physical and institutional vulnerability in terms of accessing clean water; and affordability issues.

Mr. Lee concluded by setting the stage for the next presenter to talk about current efforts under the Biden Administration. He explained how, shortly after the inauguration, a number of important executive orders were issued for advancing racial equity and protecting public health and the environment, by restoring science and tackling the climate crisis at home and abroad. Mr. Lee highlighted a few of the key efforts: the White House Environmental Justice Advisory Council; White House Environmental Justice Interagency Council; the Justice40 Initiative (which establishes a goal that 40 percent of federal climate-related resources will go to underserved, overburdened, and/or marginalized communities); and a renewed commitment to make environmental justice an integral part of the mission of federal agencies.

(2) Nettie McMiller, Environmental Protection Specialist, Office of Policy, Management, and Engagement at EPA Headquarters

Ms. McMiller started her presentation with an overview of the executive orders issued in 2021, some of which directly spoke to environmental justice and equity. Her first slide displayed the Executive Definition of the term “equity”: “the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, and Indigenous and Native American persons, Asian Americans and Pacific Islanders, and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.” Ms. McMiller noted that, as Mr. Lee had said, this definition speaks to the history of inequity and the reasons for addressing this problem. She also referenced the EPA definition of environmental justice, which focuses on fair treatment and meaningful involvement, and explained that, while this definition is broad, it hopes to accomplish goals: providing the same degree of protection from environmental and health hazards, as well as equal access to decision-making processes.

Ms. McMiller then deconstructed the meanings of the core principles of “fair treatment” and “meaningful involvement,” which were founded on the 1994 executive order requiring the EPA and other agencies to identify and address disproportionately high adverse impacts. She displayed a slide with a visual metaphor for the differences between “equality” (everyone gets the same-sized step to see over the solid fence, although the people are not the same height); “equity” (shorter people get a taller step, so that the people all end up at the same height); and “justice” (the solid fence becomes a chain-link fence, removing the systemic barrier altogether).

Returning to the Biden Administration’s priorities, Ms. McMiller summarized Executive Order 13985, on Advancing Racial Equity and Support for Underserved Communities Through the Federal Government. She explained that it starts by calling for a comprehensive approach for equity, affirms that the advancement of equity is the responsibility of the entire federal government, and highlights the need for a systemic approach, acknowledging that work needs to be done to address the historic inequities that are barriers to equal opportunity. Ms. McMiller highlighted, among other things, that the executive order calls for identifying underserved communities and developing policies designed to advance equity for those communities; for looking at methods for assessing agency policies and actions, and whether they create or

exacerbate barriers to meaningful participation; for assessing underserved communities' and their members' systemic barriers to accessing benefits and opportunities; for allocating resources to address historic failures; for consulting with members of underrepresented communities; and for establishing an Interagency Working Group on Equitable Data, which will look at how to incorporate key demographic variables in different data sets used to support policies and decision-making and provide for more equitable outcomes.

Next, Ms. McMiller turned to Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad. She explained that it addresses several areas of interest to underserved groups, including environmental justice, climate justice, and economic justice. Ms. McMiller noted that Section 219 focuses on environmental justice, including through: formalizing a commitment for agencies to include it as a mission and develop programs, policies, and activities to address those impacts; establishing the White House Environmental Justice Interagency Council and White House Environmental Justice Advisory Council, which are tasked with ensuring a comprehensive government approach to addressing environmental justice; creating the Justice40 Initiative, a government-wide initiative with the goal of delivering 40 percent of relevant federal investment benefits to disadvantaged communities (and which also establishes a scorecard to track that progress); and calling for development of a Climate and Environmental Justice Screening Tool, which could be used in support of Justice40 and to help identify disadvantaged communities.

Ms. McMiller then provided a summary of the message from EPA Administrator Regan on the EPA's commitment to environmental justice. She explained that the Administration has highlighted four directives for all EPA offices: 1) strengthen enforcement of violations of civil rights laws for communities overburdened by pollution; 2) take immediate and affirmative actions to incorporate environmental justice considerations into office work (by assessing impacts of pollution on underserved, tribal communities, etc.); 3) take steps to improve early and frequent engagement with communities affected by regulations and policies (which ties in with President Biden's memorandum on strengthening nation-to-nation relationships with tribal nations); and 4) consider and prioritize directing benefits to underserved communities in the development of grant applications and in making award decisions. Ms. McMiller shared some examples of the EPA's programmatic environmental justice efforts and considerations, including: use of EJSCREEN with water quality and TMDL data to inform decision-making; considering local and traditional uses in prioritization and decision-making; environmental justice trainings with co-regulators, partners, communities, and stakeholders; and examining methods for monitoring and assessment with environmental justice considerations. She concluded her presentation by highlighting some of the additional tools and resources that can be found on the [EPA Headquarters Office of Environmental Justice's main webpage](#).

(3) Herb Lee, President and CEO of the Pacific American Foundation

Mr. Lee began his presentation by explaining that, for over 1,000 years, Hawaiians had no contact with the outside world, and during that time, they developed sophisticated land management systems that created a symbiotic relationship with the environment. In contrast, in the 21st century, Hawaii is 80 percent dependent on container ships for goods and 90 percent dependent on imported energy. Mr. Lee noted that the goal is to begin to flip that switch again

and return to a more sustainable lifestyle. He said that he believes fishponds may play a critical role in that change.

Mr. Lee described the basic principles of the traditional land management system: as rain hits the mountains, it flows down the middle of a valley into a fishpond, bringing nutrient-laden freshwater that mixes with seawater and creates a brackish environment. He said that early explorers had been astounded at the land management systems, and at how Native Hawaiians had been able to grow food and manage these systems. Mr. Lee showed a picture of his pond on Oahu and then showed a slide comparing two aerial photographs: one from 1900, when there were a million pounds of fish in 500 ponds; and one from 2000, when 90 percent of the ponds were gone and the nearshore fisheries and ponds were not producing, leading to a “crisis mode.” He then explained how they have been trying to restore the flow of freshwater to his pond.

Next, Mr. Lee summarized some of the water quality issues that Hawaiians are facing, including eutrophication, sedimentation, bacteria contamination, pesticide and herbicide contamination, invasive plant infestation, invasive fish, lack of oceanic circulation, lack of flow, and changes in landscape and flood control management practices. He noted that 2016 was the “first sea level rise event” in the islands, where the water rose significantly to cover the seawall that separates the pond from the bay. Mr. Lee said that, over the last 25 years, they have restored the pond physically and taken out the invasive species, and over the next 25 years, the focus will be on food propagation and developing aquacultural systems. He noted that the pond is also used as a classroom in partnership with the University of Hawaii and industry partners. Mr. Lee remarked that, in 2011, the pond was considered one of the most endangered historic sites in Hawaii, even as it was in the process of being restored. He described how it had brought attention to other ponds, to trying to build bridges between indigenous wisdom and contemporary science, and to the importance of water quality.

Mr. Lee next touched on Waikalua Loko I’a: “Piko” -- the fishpond as a community classroom. He explained that the charge for his generation is to connect people to each other, the places they live in, and the concept of loving the community in which you live and taking care of it. Mr. Lee said that he is on a journey to educate people and provide opportunities for them to work with his generation, and to understand how this bridge of indigenous wisdom works with science. He added that there is now “place-based education” that teaches the core standards, etc., and they have been able to leverage that, sharing across the island’s education system and creating reconnection again, in the hopes that the next generation will be more successful in bringing fishponds back.

Mr. Lee reiterated that, for Hawaii, education has been critical in the last 25 years: they have made much headway, and there are policies now in the education system that have adopted native Hawaiian culture in more pervasive ways, including the expanded idea of community classrooms and teaching indigenous wisdoms alongside science. He expressed his hope that this strategy would produce even more, better stewards of the environment, and concluded with the idea that “it’s all about aloha” -- the relationship with people, places, and things.

A participant asked whether Mr. Herb Lee had used environmental justice funding for the programs he had described. He responded that they had received an environmental justice CARE grant for another community program, but that environmental justice funding had not been used in the context of the Pacific American Foundation's Waikalua fishpond to date. Another participant asked whether additional fishponds would be restored, to which Mr. Lee noted that there are around 40 ponds with some kind of restoration process ongoing. [Note: Hui Mālama Loko I'a is an ad hoc fishpond organization under Kua'āina Ulu 'Auamo (KUA), www.kuahawaii.org]

The discussion panel consisted of **Kari Hedin of the Fond du Lac Band of Lake Superior Chippewa, Helen Waquiui of the Minnesota Pollution Control Agency, and Ken Weaver of the Florida Department of Environmental Protection, in addition to Herb Lee.** The panel discussion was moderated by **Bonita Johnson.** Ms. Johnson began the panel by posing the question, "What environmental injustices have you seen in your work, and how have you sought to address some of them?"

Ms. Hedin responded that she has seen both injustice and work to support equity. She said that the hardest part is participating in meetings in which decisions on major environmental issues are being made, and tribal members come to share their experiences and their cultural knowledge that was passed down through generations, but that knowledge is disregarded, tribal treaty rights are disregarded, and the status quo continues. Ms. Hedin gave the example of Band members sharing how to sustainably grow and harvest wild rice, but their wisdom going unconsidered by decision-makers. She added that, in response, the Band wrote a health impact assessment as a formalized way of showing how wild rice is tied to the physical, spiritual, and mental health of tribal members. Ms. Hedin also shared some positive examples of implementing the federal trust responsibility regarding consultation on actions affecting tribal resources. She said that, in some cases, it is one-sided, that tribes have to speak up first to raise issues to the federal level, and it is especially effective when tribes have resources to stand up for their own sovereignty. She explained that having scientists, lawyers, and lobbyists can make the trust responsibility work. She shared that she is inspired when tribes support each other and collaborate.

Ms. Waquiui remarked that, in general, nationwide, and even statewide, policies that regulatory agencies operate under, like those of the Clean Air Act and Clean Water Act, were developed without specific tribal or environmental justice communities' interests in mind. So, she continued, agencies operate under policies that were not meant to hear those voices or have those voices be part of the process. Ms. Waquiui noted that hearing those voices is a big part of her role, and she expressed gratitude that her state is supporting that and prioritizing environmental justice. She said that one of the challenges is that change takes time, adding that a systematic change as much as cultural change is needed. Ms. Waquiui explained that her agency has strived to do better. She gave some examples of injustices that she has seen, such as Line 3 and impacts to wild rice, acknowledging that these are challenging issues, but that she recognizes the importance of the actual liaison piece -- being the bridge, sharing voices and concerns, understanding what limitations the agency is operating under and why those limitations exist. Ms. Waquiui said that she always reminds people that what tools they have may not be the right ones to address the issues they are facing, but that their knowledge is very important to their collective work to improve the

state's environment, and she appreciates all the tribal environmental directors and staff that are working so hard, while wearing multiple hats.

Mr. Weaver noted that his answer dovetailed with what Ms. Hedin and Ms. Waqui were saying, in terms of tools and getting other perspectives. He mentioned that he was drawing on his experience setting water quality standards for the State of Florida, such as for toxics that affect human health. Mr. Weaver said that Florida is good at protecting the general population, but there are people who are highly exposed, such as subsistence fishers, and they can have risks that are one or two orders of magnitude greater than that of the general population. He added that the state does not have good information about who is subsistence fishing and does not have the tools to figure out what the exposures are. So, he continued, there is a need to build those tools. Mr. Weaver said that this relates to some of the talks his agency has had with tribal populations in Florida; for example, Florida tried to do a fish consumption survey of the general population, but then two tribes with concerns about traditional ways of life let the agency know that the survey was not getting at their populations, so what the state was seeing was a suppressed rate of consumption compared to the actual baseline. Mr. Weaver said that he had appreciated what Ms. Hedin had said about traditional knowledge, because that is the only way to protect that tradition. He concluded by stressing the need to find tools that supplement the science.

Mr. Herb Lee suggested that the challenge in the 21st century with regard to getting to a higher state of environmental justice and equity is that many of these injustices were perpetrated before the laws were passed. He shared that his 17 acres of ancient Hawaiian fishpond is impacted by thousands of acres located on the land above. Mr. Lee also wondered how he impacts others' awareness of factors involving environmental justice and inequities, especially in the context of trying to grow food to sustain a community. He reflected that it takes significant coordination and communication, conflict resolution, management, and understanding, and he and his partners have found education to be the most pervasive tool that they have to change people's mindset.

Ms. Johnson added that, while the panel had focused on tribes thus far, it was not the intention to exclude any other populations or underserved communities from the discussion. She noted that different populations face many of the same issues: the lack of access, the lack of information, the inequity, and the barriers that exist throughout each of these issues. She commended the panelists for having been successful in addressing some of the issues. Ms. Johnson then asked the panelists, "Is there one particular case where you have found yourself to be effective, and can you identify items that you feel were instrumental in your success?" She explained that she intended this prompt to allow the panelists to give an example of what others can learn from the work that they have done, and she encouraged them to note any tools that had been critical to their success.

Ms. Hedin began by acknowledging that much of her work relates to tribes, but that she thinks some of the general ideas are useful more broadly. She said that the experience she would relay is that people do best when they support each other as a wider community. Ms. Hedin noted that, while she works for the Fond du Lac and she knows their waters and people better than those of other tribes in Minnesota, when people from different tribes get together and share concerns, those concerns are often similar. She added that each tribe is different, and the ways that they want to proceed with these things may be different. Ms. Hedin shared that, in the realm of collaboration, she had gotten to spend time in Oklahoma learning to use ATTAINS with tribes from all over the

country, in an effort to help bring tribes up to where states are with that tool. She indicated her approval of traditional uses being included as designated uses in ATTAINS -- e.g., harvesting wild rice, aesthetic uses, and wetland uses. Ms. Hedin then suggested that anyone who does not work for a state agency must be involved in state-led efforts, because a small entity cannot do it all. She gave the example that, when the state is listing its impaired waters or developing TMDLs, it helps for the tribe to have regular communications with the state, such as when Fond du Lac had recently been invited to Minnesota's listing exercise for the St. Louis River. Ms. Hedin said that she also was looking forward to communicating about the upcoming mercury TMDL for that river with Minnesota and Wisconsin. She concluded with the observation that real change happens at the really broad government level.

Mr. Herb Lee explained that, from an indigenous standpoint, elders have taught that people should look at these things from not just an environmental standpoint, but holistically, including from the food propagation standpoint, looking forward seven generations. He reflected that, when they started restoring the fishpond 25 years ago, they were thinking day-to-day; but when they got ownership of the pond (20 years later), the wisdom of the pond's 400-year history became clearer, because now they had a responsibility to protect it in perpetuity for future generations. Mr. Lee referenced the process formula that they had to rediscover, starting with powers of observation, looking at changes over time in the environment, looking at the new players that impact their resources in the 21st century, and figuring out what is happening. Then, he explained, from observation comes interpretation -- they have scientists, experts, and elders to help interpret what they are observing. In conclusion, he focused on application (O.I.A. principle), how they can begin to apply changes in ways that are meaningful, in ways that will last generations and return things to where they were before the present generation (and hopefully improved).

Ms. Waquiu began her answer by adding to what Ms. Hedin and Mr. Lee said, about how it is a challenge to recognize success with so much work left to do. She noted that she appreciated the question from Ms. Johnson, because it is critical to realize that people are focused on what it means to have environmental justice as a priority in our systems. Ms. Waquiu explained that she has been working with agency leadership on really thinking about the processes that they have in place. She observed that it is helpful to recognize that the process and the policies are being questioned, not necessarily the people and their judgment. Ms. Waquiu shared her belief that it takes time, but with an open mind and using the approach that Mr. Lee and Ms. Hedin laid out, thinking about collaboration and learning from each other, success is possible. She acknowledged that there will always be disagreements, or a path that is chosen that was not the one preferred by a stakeholder, but she stressed that the underlying policies are what need to be figured out: what is the process, why is it there, and is it working to address what should be the focus of the next few years. She added that, when thinking about air, climate change, and water, the focus should be not just on what we have now, but what is coming in the future.

A participant asked, "What specific ways do you think we can include environmental justice issues in TMDL programs?"

Mr. Herb Lee responded that community involvement was a way to do so, emphasizing that he meant meaningful involvement, not "checking the box" involvement.

Ms. Johnson echoed his answer and added that, when developing TMDLs, there is public participation required of states, which involves a public notice step, and that efforts can be made to ensure that communities that are potentially affected have access to the draft TMDL, so that they can provide input.

Ms. Hedin agreed that the processes of public notice are important, but said that, even before those process points, she hears from tribes and environmental justice communities that they want to engage early and often. She explained that there may be so much going on in these communities that it is hard for them to stop and focus on figuring out what a TMDL is, but that if someone takes time to build relationships and connections before the public notice stage, processes will be in place. Ms. Hedin acknowledged that it can be difficult for scientists and engineers to share information when they do not have it all, or they feel that they do not have it ready yet, but she opined that early is actually the best time to start building those relationships.

Mr. Weaver added that, in prioritization, Florida had used some of the metrics and indicators from EJSCREEN for the last prioritization process, but that he agreed that engaging the community is not just a simple numerical approach.

Ms. Johnson remarked that all of this really is a quality-of-life issue. She suggested that, instead of seeing an impaired water, programs should view it as how the quality of life is affected by an impairment. She explained that thinking that way can help inform a program's action items, adding that, if there is an impaired water, there likely are other things in that community that should be addressed.

Another participant asked about bridging the equity gap.

In response, Ms. Johnson explained how incremental work can help along the way until the barrier is actually removed.

Ms. Hedin noted her appreciation for how Ms. Johnson had described the incremental work toward justice. She added that, based on what she had seen, it takes decades of sitting together, disagreeing, trying one way that fails, trying another way, learning about a new policy, getting a new grant, and continuing to work with the resources available. She acknowledged that, when it comes to justice and removing barriers, sometimes it takes the legal system.

Mr. Herb Lee said that it is a tremendously complicated topic, adding that he had been moved by one of Mr. Charles Lee's slides about how environmental justice is the intertwining of the built environment, the natural environment, and the social environment, which means it is dynamic and complicated. Mr. Herb Lee suggested that an understanding of that dynamic and lots of conflict resolution are needed to resolve these issues, which will not happen overnight, and that it goes back to relationship building, early communication, and providing people with enough information to make an informed decision equitably.

Ms. Johnson noted that equity has much to do with disproportionality -- disproportionate facilities, disproportionate air quality, etc. -- and that making improvements so that there is more equitable

sharing in benefits and more equitable bearing of burdens is part of the process of addressing issues incrementally, so as to arrive at total justice.

Mr. Schempp then asked the panelists if they would share examples or suggestions related to strategies for engagement with and outreach to communities with environmental justice concerns.

Ms. Waquiú suggested thinking about how to make space in one's work, and the work of the agency generally, for people from communities with environmental justice concerns, to be there contributing to the efforts. She shared the recent diversity, equity, and inclusion efforts at her agency, including looking at who the agency is hiring, how they write position descriptions, and how they establish minimum qualifications. She emphasized the importance of being that detailed in making space for people to come join at the table. Ms. Waquiú continued by highlighting that, beyond the broader level of bringing in those voices, it also is important to go out to reach people in those places. She suggested that programs meet these communities where they are, using the example of going to community events and learning more about the communities, including what their concerns are.

Ms. Johnson said that, if there is a message to convey or programs want to engage with communities, it is important to know who the community influencers are. She explained that, given their general distrust of government, these communities may not know what an agency is there to do or suspect ulterior motives; therefore, it is important to connect with people who have influence, and to relay to them with sincerity what the goal is. Ms. Johnson noted that it provides the opportunity to be invited in, which can open the door to the wider community. She stressed that, in these conversations, program representatives should be listening to understand, letting the community articulate their needs, not just trying to communicate the program's needs.

Mr. Herb Lee agreed that one cannot enter a relationship or conversation with those community leaders with a pre-established agenda; rather, one must "come with an open hand and open heart" and appeal to them to enter into a process of dialogue that can then set an agenda. He said that, if the community realizes that people are coming in with their own agenda, they are not going to open the door, and it is going to reinforce the existing distrust.

Ms. Hedin said that the question itself speaks to the fact that the onus is on those who are doing this work now to teach the people coming up behind them, to help ensure that the college students, interns, etc. are doing this from the beginning of their careers and not perpetuating the same injustices.

Ms. Johnson reemphasized the importance of creating a vision together, listening to what the community wants and creating something that is widely accepted.

As the final question, Mr. Schempp asked the panelists about language and terminology, and ways to approach these communications given that program staff often come to the conversation with their own terms, acronyms, and understandings, which may not be shared by everyone at the table.

Mr. Herb Lee responded by noting that the word that had come to his mind was "holistic," and the importance of looking at things holistically. He said that, for TMDLs, it is important to look at all

the things contributing to the daily loads, because waters are part of a system, and it is necessary to look at systems holistically to figure out solutions.

Ms. Waquiú added that it is important to recognize that many indigenous people do not consider themselves separate from that system, but rather as part of the same being. She said that it is a difficult concept to communicate to non-tribal staff, but when working with communities in which people are brought up with the understanding that everyone is part of the same system, that is the language that a state agency's tribal counterparts are used to hearing. Ms. Waquiú acknowledged that the CWA 303(d) process can make it difficult to convey that concept, given that it calls for setting standards for separate segments of waters, among other things. She also noted the challenge in valuing a water resource or how a project is affecting water quality, since economic analysis tends not to look at the value of ecosystem services and cultural resources or incorporate traditional knowledge.

Session 3: Climate Change

This session featured four presentations, followed by a panel discussion. The session was moderated by Miranda Chien-Hale of EPA Headquarters. Ms. Chien-Hale began the session by highlighting the Biden Administration's focus on climate change, what the EPA Office of Water is doing toward that end, and how climate impacts affect CWA 303(d) Program work. She then introduced the speakers.

(1) Stephanie Santell, Environmental Scientist, Office of Water at EPA Headquarters

Ms. Santell opened her presentation by explaining that she works to advance climate and other broader resilience-building efforts. She briefly outlined her presentation, noting that she first would provide an overview of climate change impacts and then discuss the CWA 303(d) Program specifically. Ms. Santell said that, while the increase of extreme weather events is a sure sign that climate change is affecting the environment, regular nuisance flooding, more frequent and prolonged water shortages, and erratic seasons are regular inconveniences that everyone encounters due to the changing climate. She added that water is a medium that counters the perception that many people still have that they will not be personally affected by climate change; talking about water is useful because people have tangible, emotional, and physical connections to it. She conveyed a personal anecdote, noting that she wanted a career in environmental protection after growing up on Long Island Sound and moving to the Finger Lakes region.

Ms. Santell then highlighted the importance of water in curbing the climate crisis. She explained that the National Water Program already is confronting a variety of climate impacts, including increased risk of extreme weather to water infrastructure, saltwater intrusion, and increased pollutant loading of water bodies from changing precipitation patterns. Ms. Santell said that the quantity and diversity of these impacts underscore the importance of climate adaptation and resilience to the water mission. She added that, despite these challenges, water programs must restore and protect the integrity of the nation's waters, and over the past several years, they have built national resilience to these challenges.

Ms. Santell noted that climate change is not a new topic to the National Water Program. Since 2007, she explained, the program has supported state and local resilience needs by developing approaches that break down federal program barriers to build up community resilience. She said that the first National Water Program climate work group formed in 2007, and climate change activities were advanced under three foundational planning documents, *National Water Program Strategy: Response to Climate Change* (2008), *National Water Program Strategy: Response to Climate Change* (2012), and *Office of Water Climate Change Adaptation Implementation Plan* (2014). The 2012 strategy established longer-term goals and priority actions, and the 2014 plan helped the implementation of the 2012 strategy. Ms. Santell added that an essential goal of the documents was to build adaptive capacity of the National Water Program and state, tribal, and local partners. She noted that the group continues to implement the charge in these documents, in addition to providing annual work plans, and highlights reports that capture the progress happening under the 2012 strategy. She summarized the main goal of the work group as essentially to coordinate and collaborate across the EPA and other partners to mainstream climate change concepts into all CWA and Safe Drinking Water Act (SDWA) programs.

Ms. Santell then detailed how achieving water management goals under the CWA and SDWA had become more challenging as climate change had shifted hydrological patterns and increased variability outside of historic norms. She said that climate can affect everything from the development of water quality standards to the drinking water that comes out of the tap. Ms. Santell added that the National Water Program identified the main vulnerabilities in 2014, which included, among others, more extreme weather, changes in water availability, and water boundary movement. She noted that there were additional impacts specific to coastal areas.

Ms. Santell continued by identifying key issues and breaking them down into four bins: water related illness and drinking water concerns; risk to critical infrastructure and water supply; impacts to aquatic ecosystem health; and impacts to communities. She said that, while the National Water Program is cognizant of the impacts that climate specifically presents to aquatic systems, it frames those impacts in terms of the organisms living in those systems. She noted that the impacts transcend the environmental space, to the economic and social spheres.

Ms. Santell emphasized that communities around the country continue to face more extreme events, with costly impacts on public health, the environment, and economies. She added that many communities, especially smaller rural ones and those with environmental justice concerns, are still struggling to adapt. Ms. Santell explained that, to help address these challenges, the National Water Program works to implement resiliency broadly and has helped states and localities execute a variety of water management-related resiliency activities through regulatory and non-regulatory programs, including technical assistance, financial support, and convening and outreach support. The activities also help to inform the public of the risks and how communities may be affected. Ms. Santell then talked about coordinating with other organizations to make progress. She noted that the National Water Program is working to revitalize connections to other federal programs that influence water resource management, to expand the opportunities for partnerships.

Ms. Santell explained that the National Water Program recently had been reflecting on the achievements it had made so far and what the next steps will be. As an example, she said that, instead of waiting for more data, the National Water Program had been working to remove program silos and unite existing data to inform decisions. She noted that, while progress had been made, significant room remained for further integrating revised priorities within and across water programs.

Ms. Santell then turned her attention to the Executive Order on Tackling the Climate Crisis at Home and Abroad, noting that it presents many opportunities to address climate change through a collaborative, government-wide approach. She said that the American Jobs Plan and other administrative efforts also complement many of the directives in the executive order, and that some of the focus areas getting more attention lately include the connection between equity, access to clean water, and human health; how climate change impacts the balance of those three factors; greater sensitivity to the needs of tribal communities; safeguarding water infrastructure and using natural approaches to bolster community or watershed resilience; developing collaborative solutions that work on larger scales across jurisdictional boundaries and throughout a watershed system; and cross-program support.” Ms. Santell also emphasized the importance of stakeholders, noting that it is difficult to have workable solutions without buy-in from stakeholders, and that everyone needs access to the same information in order to have effective engagement.

Ms. Santell, alluding to requests for help in securing resources to start projects, noted that the National Water Program is considering producing a consolidated guide to types of available assistance for water-related resiliency projects. She said that the National Water Program also has multiple water-relevant projects within the National Estuaries Program; has been creating a resilient water utilities program to provide drinking, waste, and stormwater utilities with tools, training, and assistance; and has a green infrastructure program.

Ms. Santell then addressed the CWA 303(d) Program specifically. She said that this program is a collaborative opportunity that can further integrate resilience and climate change information as an avenue to build stronger water resource programs and attain water restoration goals. She noted that things such as climate-ready BMPs can increase the likelihood that waters are healthy or continue to be restored in the face of changing environmental conditions. Ms. Santell posited that integrating climate change into CWA 303(d) activities can do several things, including helping to strengthen program relationships and stakeholder support, strengthen and expand collaborative partnerships for water resource management, bolster the effectiveness and technical robustness of TMDLs, support development and use of long-term comprehensive planning tools, and encourage states and localities to be more proactive in preventing impairments through hazard mitigation. Ms. Santell emphasized the importance of building connections with other agencies that have water data, including NOAA, USGS, and NASA. She then asked the participants to integrate water protection and restoration within their programs and focus on watershed health, adding that this will better ensure that future generations will enjoy the benefits the waters provide. Ms. Santell concluded her remarks by asking the participants two questions: how does the CWA 303(d) Program go beyond its past and build upon the possibilities to institutionalize climate considerations, and how can it be a better provider of information?

A participant asked whether any training materials or guidance regarding TMDLs and climate would be available. Ms. Santell responded by first talking about the 2008 initial strategy document. She noted that it relied on a trickle-down effect, where programs were instructed to consider climate change, but the way in which they did so was up to them. She suggested that the next step be to think about where climate data and decision-support tools can be incorporated to ensure that states, territories, and communities have the information that they need to consider climate change in their programs. She noted that this step largely will be up to the CWA 303(d) Program at all levels.

Another participant asked whether Ms. Santell knew of any TMDLs that include actions to address climate change at the local level. She said that there are several TMDLs that are good examples of incorporating climate change into both the development and implementation of the TMDL. She suggested looking at the Columbia River, Lake Champlain, the Chesapeake Bay TMDLs, among others.

A participant then asked what possibilities exist for tribes to pursue funding in this regard. Ms. Santell said that the Office of Tribal Affairs has been working on it and that other federal agencies have grant programs available. She mentioned NOAA's coastal resilience grant for the ocean and Great Lakes and the Bureau of Indian Affairs' grant programs and encouraged people to look within the EPA as well.

Another participant asked for more detail on the efforts of the Urban Waters Federal Partnership. Ms. Santell said that it has been helping states, localities, and regions with hazard mitigation approaches and thinking about how to integrate environmental and water management approaches into different planning efforts at different levels. She added that it is working to get those considerations woven into what a community does at a local level, and working to connect urban areas with their water resources so as to protect or restore them for environmental, economic, and social benefits.

Yet another participant asked what specific metrics exist to show whether they are prepared for the impacts of climate change. Ms. Santell responded by talking about the national climate assessment. She acknowledged that it is not something that people always think of as an information source for water management programs, but she said that she believes there is a plethora of good information there. She explained that the information is broken down by region, which can be helpful when considering the impacts to the area one lives in and how one can prepare for those specific events. Ms. Santell added that understanding the different scenarios and projections of what climate change will look like in the future is valuable for water program activities on the ground; it will allow those programs to apply recent research and scientific information to work on initiatives such as building infrastructure. Ms. Santell then mentioned that agencies, including the EPA, NOAA, DOE, NASA, and USGS, are thinking about how to combine water quality and quantity data to construct a complete picture of how the water world will change due to climate change.

**(2) Justin Williams, Director of the Office of Watersheds and Local Government
Assistance, Virginia Department of Environmental Quality**

Mr. Williams began his presentation by noting that, while climate change had been a big part of the discussion in Virginia and nationally for some time, Virginia's enabling statute was amended earlier in the year to specifically recognize climate change and require that climate resilience be taken into account across all programs and permitting processes. Mr. Williams said that implementation of the statute had extended to TMDL development. He added that stakeholders, including environmental NGOs and industry, had more frequently been requesting the inclusion of climate change in TMDLs, modeling, and more.

Mr. Williams explained that Virginia had just started looking at the opportunity to incorporate climate change, primarily by engaging with their contractor who works with stakeholders through the TMDL development process and provides modeling and analysis work. He said that this process actually raised more questions than yielded answers about the best way to approach incorporating climate change. Mr. Williams noted that they have looked at a test case, a TMDL that was under development, and tried to see what incorporating climate change would look like. He indicated that the opportunity for specific metrics and data arises when looking at tackling climate change because, aside from having a general concept of climate change, specific numbers and information are needed to accompany the modeling effort.

Mr. Williams then referenced Virginia's role in the Chesapeake Bay restoration, and that the Chesapeake Bay Program has generated county-specific projected climate data at ten-year intervals. He said that the data can be used to model percent change in precipitation between a historical marker (in this case, 1995) and as far in the future as 2055, using ten-year intervals. He added that the modeling results can be broken down by locality. Mr. Williams explained that they will look at the data and process to aid in moving forward with TMDLs across the state. He noted that, although the Chesapeake Bay Program data were formulated across 10-year intervals, they are looking at a 30-year projection timeframe to avoid multiple projection calculations and modeling. He added that they created both baseline and future condition loading allocations.

Mr. Williams said that they are trying to finalize a conceptual trial approach with the contractor. While they will use this approach with a specific TMDL that is under development, he clarified that they are not intending to actually have it incorporated into the TMDL. He explained that they were doing this because they just believed that the best approach was to take an actual TMDL and figure out how to practically do this process, instead of just talking about it broadly. Mr. Williams noted that, as they finalize the trial approach, they will reach out to stakeholders and work on creating guidance that would be available for the program and stakeholders. Mr. Williams concluded his presentation by acknowledging that it is easy to talk about the necessity and approach of incorporating climate change in any program, but the gray areas and challenges arise when one actually starts to look at the specifics, especially when it comes to metrics and data.

(3) Kristy Fortman, Watershed Protection Program Manager, Montana Department of Environmental Quality

Ms. Fortman started her presentation by explaining that she would be identifying climate change considerations in relation to the CWA 303(d) Program and TMDL implementation. She noted that Montana has been experiencing changes in precipitation (snow shifting to rain earlier in the spring, local precipitation patterns leading to flooding and fires, and widespread drought leading to low flows) as well as higher water temperatures, which can lead to eutrophication and a lack of refugia for aquatic life. She said that, for these reasons, there should be a focus on temperature in relation to climate change concerns in Montana.

Ms. Fortman then provided an example, the Smith River. She said that every year thousands of people apply to float it, but that floaters began reporting nuisance algae in 2015. She referenced a study that revealed warming temperatures beginning in June that provide the optimal temperature range for algae to thrive. Ms. Fortman noted that the floating season is very short, and the June optimal temperature range coincides with the time when the waters are high enough to float. Ms. Fortman added that, in the region, the average weekly minimum air temperature had increased about 3.3 degrees during that time period.

Returning to the CWA 303(d) Program, Ms. Fortman explained that the general increase in air and water temperatures throughout Montana, especially the increase in minimum temperatures, can significantly affect aquatic life. She said that the water temperature assessment method involves modeling, which requires significant resources. Ms. Fortman also noted that they are trying to focus on variables affecting water temperature, including local and regional climate, land use and management, shade, channel geometry, stream flow, and point sources. She added that TMDL development can directly influence some of these variables, explaining that their primary focus is on restoring and protecting riparian vegetation because it can affect many variables at once.

Ms. Fortman referenced South Fork Antelope Creek, a tributary to a prized trout fishery, as another example. She noted that the state collected data and ran a QUAL2k model, which said the water is no longer impaired. Ms. Fortman explained that they then ran an extreme low flow scenario and found that the stream still would not be impaired. So, she said, they did not develop a TMDL. Yet, she added that TMDLs should incorporate adaptive management with changing conditions, noting they anticipate including climate change scenarios, like the extreme low flow scenario, in future TMDLs.

Ms. Fortman then focused on climate resilience, which she said they have been incorporating into TMDL implementation. She said that this includes restoring natural stream processes and restoring and protecting riparian vegetation, adding that they are doing restoration on a scale from no action necessary to full stream reconstruction. Ms. Fortman gave the example of Nine Mile Creek, which was heavily affected by mining and highly erosive banks, leading to a lack of habitat and increased sediment in the stream. She elaborated on the implementation project, clarifying that it includes a multi-phase restoration, removing tailings piles and restoring stream geometry and habitat. She noted that they have received millions of dollars from FEMA and CWA 319 funds.

Ms. Fortman then highlighted climate considerations for future program planning, suggesting the identification and prioritization of critical areas as well as continuing to work on other variables where the program can make a difference, such as riparian habitat and land use management. She also recommended incorporating climate change considerations into other pollutant groups and program areas. Ms. Fortman said that they recently had completed many sediment assessments in areas hit hard by fires and still needed to determine what they are prioritizing, for example, first-order streams or places where they can provide refugia and water storage in the long term. She referenced their implementation evaluations, which are done for waters with many TMDL implementation activities, as important steps for adaptive management because they can reevaluate the targets from the original TMDL and work on climate considerations. To conclude, she emphasized the importance of incorporating climate considerations, so as to adapt to changing conditions and an uncertain future.

(4) Kevin Kirsch, Water Resource Engineer, Wisconsin Department of Natural Resources

Mr. Kirsch began his presentation by noting that, while he is the TMDL development coordinator for Wisconsin, he also works in many other program areas because TMDLs bring everything together. Regarding climate change, he referenced a 2011 Wisconsin report that has provided a good framework for the program, and after a two-term hiatus on the topic, the state is back to integrating climate considerations again, continuing to use the 2011 report.

Mr. Kirsch continued by describing how climate change will affect Wisconsin. He noted that their winters will warm more than their summers, between three and ten degrees Fahrenheit by 2050. He said that this will affect whether they get rain or snow in the winter, and ice cover. Mr. Kirsch also clarified that the temperature variation will not be uniform across the state, with the areas further north seeing greater warming. He then explained that the state will tend to have overall wetter years, although that will vary from year to year. More specifically, he added, summers will tend to be drier, winters and springs will tend to be wetter, and there will be an increase in overall extreme precipitation events. He provided an example from Madison, noting that, two years earlier, the city experienced an 11+ inch rainfall event, which is considered a thousand-year event, that produced significant localized flooding.

Mr. Kirsch explained that the climate change impacts to waters will affect aquatic infrastructure, including oxygen levels, nutrient cycling, growth, survival, reproduction cycles, and more. He said that they are already starting to see this impact, like algal blooms earlier in the year due to the increased temperatures. He added that increased temperatures also allow invasive species' ranges to expand, and they are seeing that changes in water level fluctuations between droughts and wet years are impacting habitats and fisheries. In turn, Mr. Kirsch noted, this has started to impact the biological aspects of receiving waters. While TMDLs look at pollutant loads, he said, there are now these additional biological factors that need to be considered; for example, the spiny water flea appeared in a lake near Madison and seriously disrupted the food chain, to the point where lower than normal phosphorus and nitrogen levels still yielded significant algal blooms.

Mr. Kirsch then focused on TMDLs. He said that climate change will impact water quality and TMDLs in many ways and explained that his remarks would address agricultural impacts and

urban stormwater impacts. He noted that Wisconsin focused on two areas related to agricultural impacts and saw multiple negative effects on water quality due to climate change, including increased erosion, faster decay of crop residues, reduced windows for manure application in the spring and fall, and increased runoff carrying pollutants to receiving waters. Mr. Kirsch also referenced the potential for an increase in summer droughts, which would reduce plant cover, resulting in less protection to mitigate erosion during intense storms. He then turned to adaptation strategies, suggesting that, if the program does what it is supposed to do to meet water quality standards and mitigate the impacts of agriculture on water quality, the systems would be equipped for climate change. He added that this means that Wisconsin really needs to advance agricultural practices in the state, including the technology used. He emphasized that adaptation strategies aiding climate resilience also would provide an opportunity to most farmers to increase profitability and provide water quality protection.

Mr. Kirsch noted that this double benefit is not as true for urban stormwater infrastructure. He explained that there will be increased flooding and habitat destruction, and that many stormwater practices designed for previous stormwater frequency and duration will be overwhelmed. He added that there will be an increase in SSOs and CSOs and an overall increase in the delivery of pollutants to receiving waters. Mr. Kirsch also said that adaptation strategies for urban infrastructure are not quite as straight-forward as they are for the agricultural industry: updated climate data for designs and modeling often result in upsizing for many structures, and flooding should be addressed by larger practices but still scaled to handle water quality. He opined that many regional ponds are not sufficient to address the expected flooding and water quality issues, making it necessary to complement those existing regional practices with dispersed infiltration and green infrastructure.

Mr. Kirsch then detailed some climate change challenges in TMDL development. He explained that Wisconsin uses current and representative climate data to address critical conditions and ensure that they have wet, dry, and average years to address critical flow situations. He added that climate change can require the use of more complicated mechanistic models to analyze different scenarios. To do this, he said, they first run various scenarios under current climate data, to ensure that the parameters are correct for simulating the process. Mr. Kirsch noted that models must be calibrated with existing data and may not provide accurate simulations using future climate scenarios. He then provided an example: in the Wisconsin River Basin, a contractor worked on a model for 1.5 to 2 years, and when the program team received it, the calibrated and validated data looked great, but in practice the model got weird results; so, they ended up having to scrap the model and use a different one. He said that, although they had wanted to look at climate change impacts, they could not because the model could not.

Mr. Kirsch noted that they receive many comments about whether and how they are addressing climate change and how they are addressing different aspects of the changing landscape. He said that one comment was addressed by collaborating with researchers from the University of Wisconsin, who arrived at the conclusion that, while the impact of changing temperatures and precipitation coupled with the impact of invasive species was uncertain, the amount of phosphorus entering Lake Winnebago needed to be reduced, regardless. Mr. Kirsch explained that the TMDL already required an 83 percent reduction in phosphorus loads from all sources and called for various lake restoration initiatives, including reestablishment of aquatic

vegetation. He added that this already is a significant reduction, so factoring projected climate change into the percent reductions likely would only complicate the message.

Mr. Kirsch then focused on accounting for climate change in TMDL implementation analysis, explaining that implementation is the stage of the TMDL process in which Wisconsin has primarily addressed climate change impacts. He specifically mentioned SnapPlus, nutrient management planning software that they use to evaluate compliance with edge of field targets. He provided an example of a TMDL implementation effort in which the 80 CAFOs in the watershed all have nutrient management plans for all of the fields, enabling the state to aggregate the data up for the watershed model and back down for the implementation analysis. Mr. Kirsch explained that this allowed them to better specify the target. He added that the model's climate data can then be updated with the "new normal," so the model reflects all of the implications of climate change. Thus, he continued, as precipitation trends become better documented and incorporated into the model, the percent reductions will become either easier or harder to obtain, and the program will need to select practices accordingly.

Mr. Kirsch concluded his presentation by indicating that the 2011 report should be updated again, adding that, while the adaptation strategies themselves likely will not change, the refinement in models will be reflected.

A participant asked Mr. Williams for more information about a TMDL that he referenced, including the particular pollutant at issue. Mr. Williams responded by explaining that he kept his remarks at a high level based on where they were with stakeholder discussions. He said that they were considering a PCB TMDL for the eastern portion of the state, along watersheds connected to the James River. He explained that this TMDL just happened to be the one on which they were working, and they had received significant feedback and questions from stakeholders regarding climate change. He said that they ultimately will use this as the model approach to develop procedures that could be used across all of their TMDLs.

A participant asked Mr. Kirsch if SnapPlus could be used for TMDL development. Mr. Kirsch explained that SnapPlus is a mechanistic model, so if a program could take the edge-of-field sediment and phosphorus load and deliver it to the water body, it could be used. He added that they still use a watershed model, since it allows for delivery through hydraulic networks to various receiving waters; they then couple that with SnapPlus on the receiving end.

Another participant asked Ms. Fortman about how stakeholders have responded to the incorporation of climate change into TMDLs, specifically whether Montana had received a similar response to the response in Virginia. Ms. Fortman said that they focus less on the phrase "climate change" and more on "extreme low flow scenarios," and terms like it. She said that many of their stakeholders are producers and ranchers and are concerned about climate change because they see the effects on the ground with droughts. She further noted that she has heard about interest in climate change, but she has not received specific responses about anything in the documents.

A participant asked Mr. Kirsch if Wisconsin has presented the findings to the agricultural community, and if so what their responses were. Mr. Kirsch responded by saying that they have shared their findings, and the stakeholders considered the material helpful when in a format they

are used to interpreting. He explained that the stakeholders previously had no idea what a load allocation meant, but now, expressing it as an edge-of-field target has been helpful. Mr. Kirsch also noted that many of the progressive farmers are already meeting or are close to meeting their targets. He added that, like Ms. Fortman mentioned, the TMDLs they have developed over the last three years do not directly mention climate change but rather incorporate it very subtly.

Session 4: Climate Change and Environmental Justice Discussions and Trainings

This session consisted of 16 breakouts, with some of them being presentation-based while others were more discussion-based. Prior to the training workshop, ELI staff, with the help of the WPG, assembled a list of training and discussion topics concerning either or both environmental justice and climate change. Through the registration materials, participants indicated their preferences from among these topics. ELI, again with the help of the WPG, then selected the most popular of these topics and developed their respective agendas. In the weeks leading up to the training workshop, ELI staff sought the preferences, from among nine options, of each registrant. Some of the discussion-based breakouts received more interest than would be feasible for a robust conversation, so ELI created multiple breakouts for those topics, each limited to 30 people. ELI staff then assigned participants to breakouts according to their expressed preferences. Presentation slides from three of the breakouts that had presentations can be found [here](#).

- **Environmental Justice and Water Quality Data Management Tools**
This breakout offered an exploration into how to better include and convey environmental justice information in various water quality data management tools, including ATTAINS and WQX. Jesse Boorman-Padgett and Dwane Young of EPA Headquarters led the facilitated discussion.
- **Tools for Environmental Justice: EJSCREEN and EnviroAtlas**
This breakout provided an introductory overview of environmental justice-relevant data and functionalities of the tools EJSCREEN and EnviroAtlas, with details as to how their data can be downloaded and used outside their mapping platform and other data can be visualized in their mapping platform. Sara Schwartz of EPA Headquarters moderated the breakout, and presentations were delivered by Jessica Daniel and Anne Neale of the EPA Office of Research and Development and Matt Lee of the EPA Office of Environmental Justice.
- **Considering Climate Change and Environmental Justice through the Recovery Potential Screening Tool and Watershed Index Online**
This breakout provided an introduction to the new social and stressor indicators available in the Watershed Index Online and exploration of potential uses in the Recovery Potential Screening tool. Presentations were delivered by Miranda Chien-Hale and Emily Cira of EPA Headquarters and Andy Somor of Cadmus.
- **Accounting for Climate Change: Approaches and Lessons**
This breakout offered examples of how climate change is being considered in various water quality analyses and activities, including approaches to nutrients and sediment in the Chesapeake Bay TMDL, cold water refuges in the Columbia River, and watershed studies in Minnesota. Dylan Laird of EPA Headquarters moderated the breakout, and presentations were delivered by Lew Linker of the EPA

Chesapeake Bay Program Office, John Palmer of EPA Region 10, and Andrea Plevan of Minnesota.

- **Prioritizing Waters in Light of Climate Change and Environmental Justice Considerations**
Two breakouts explored various ways, in the course of prioritizing waters for restoration and protection, to: (1) create and ensure equity across communities, with increased effort toward communities with environmental justice concerns; and (2) more completely consider the effects of climate change. Discussion in the respective breakouts was facilitated by Amy Feingold of EPA Region 4 and Jeff Berckes of Iowa.
- **Environmental Justice and Standards, Monitoring, and CWA 303(d) Listing**
Two breakouts explored ways to highlight water quality problems in the wide variety of communities with environmental justice concerns through CWA 303(d) listing and the Integrated Report generally. Discussion in the respective breakouts was facilitated by Bill Richardson of EPA Region 3 and Chris Hunter of EPA Headquarters.
- **Climate Change and Standards, Monitoring, and CWA 303(d) Listing**
Four breakouts explored ways to reflect the water quality impacts of an increasingly uncertain climate in CWA 303(d) listing and the Integrated Report generally. Discussion in the respective breakouts was facilitated by Traci Iott of Connecticut, Dustin Shull of Pennsylvania, Jill Fullagar of EPA Region 10, and Eric Monschein of EPA Headquarters.
- **Environmental Justice and TMDL Development and Implementation**
This breakout explored ways to adapt aspects of the CWA 303(d) Program, from the use of program resources to outreach and engagement, to better consider and include communities with environmental justice concerns in TMDL development and implementation. Discussion in this breakout was facilitated by Will Isenberg of Virginia.
- **Climate Change and TMDL Development and Implementation**
Three breakouts explored ways for TMDLs to account for the effects of climate change and how implementation projects can be more resilient to the effects of climate change. Discussion in the respective breakouts was facilitated by Heather Husband of North Dakota, Kristy Fortman of Montana, and David Werbach of EPA Region 5.

Session 5: Breakouts I

This session consisted of seven breakouts, each focusing on a different topic. ELI staff selected the topics based on responses in the registration materials and then, with the help of the WPG, developed the respective agendas, including speakers, facilitators, and discussion questions. Participants were assigned to a breakout based on their respective preferences, expressed in the weeks prior to the training workshop. Presentation slides and materials from each breakout that had them can be found [here](#).

- **ATTAINS: A Training on TMDL Entry**
 This ATTAINS training, intended for individuals who are responsible for entering and/or reviewing TMDL data in ATTAINS, focused on how to enter a TMDL Action into ATTAINS, including how to get credit under the CWA 303(d) measure and how states can associate the TMDL Actions with Assessments to put an Assessment Unit/Parameter combination into Category 4(a). Demonstrations were led by Monique Dulac and Wendy Reid of EPA Headquarters and Vilma Rivera-Carrero of EPA Region 5.
- **How to Answer Common Questions with Available Data Tools**
 This breakout informed participants how to use ATTAINS reports, ATTAINS web services, and the geospatial service to answer common questions about the data. Demonstrations were led by Jesse Boorman-Padgett and Dwane Young of EPA Headquarters.
- **How Tribes Can Use the CWA to Protect their Water Resources**
 This breakout began with an overview of authorities, resources, and initiatives stemming from the Clean Water Act that can aid tribes in the protection of their waters, including but not limited to Treatment in the Same Manner as a State (TAS). That was followed by a panel of staff from different tribes and a fisheries commission relaying their experiences with those authorities, resources, and initiatives. Kari Hedin of the Fond du Lac Band of Lake Superior Chippewa moderated the breakout; Jim Havard of EPA Headquarters delivered the presentation; and the panel consisted of Seth Book of the Skokomish Tribe, Michael Martinez of the Northwest Indian Fisheries Commission, and Kerstien McMurl of the Iowa Tribe of Oklahoma.
- **Litigation on CWA 303(d) Listing and TMDLs**
 This breakout provided a summary of recent and pending federal TMDL and CWA 303(d) listing litigation and the potential impacts of recent decisions. Chris Lewicki of EPA Headquarters moderated the breakout, and the presentation was delivered by Jim Curtin, Tom Glazer, Steve Sweeney, Alec Mullee, and Andrea Priest of the EPA Office of General Counsel.
- **Continuing Planning Process and Water Quality Management Plan Requirements: Perspectives of EPA Region 6, New Mexico, and Texas**
 This breakout offered an overview of the CPP and WQMP language contained within the CWA and program regulations, followed by a discussion of the implementation of those requirements. The breakout focused on the relationship between CPPs and WQMPs, their connection with TMDL establishment and potential utility for TMDL revisions, and their significance from the perspective of National Pollutant Discharge Elimination System permitting and program authorization. Presentations were delivered by Richard Wooster of EPA Region 6, Heidi Henderson of New Mexico, and Kerry Niemann of Texas.
- **Storytelling for Impact**
 Professor John D. Trybus of Georgetown University's Center for Social Impact Communication delivered a presentation during this breakout on how to design stories with purpose and emotion in strategically modern ways that will benefit participants' work now and into the future.

- Updates on Protection

This breakout provided an overview of how CWA 303(d)/TMDL and nonpoint source watershed protection efforts connect to new administration priorities as well as ELI's compendium on protection, the forthcoming CWA 319 report, Healthy Watersheds Consortium Grants, and future plans for the Healthy Watersheds Program. This presentation was followed by a state-focused discussion and "learning exchange" on how good protection planning can lead to positive water quality outcomes in practice. The presentation was delivered by Miranda Chien-Hale and Steve Epting of EPA Headquarters, Sequoya Bua-Iam of the ORISE Fellowship Program at EPA Headquarters, and Adam Schempp of ELI.

Session 6: Breakouts II

This session consisted of six breakouts, each focusing on a different topic. ELI staff selected the topics based on responses in the registration materials and then, with the help of the WPG, developed the respective agendas, including speakers, facilitators, and discussion questions. Participants were assigned to a breakout based on their respective preferences, expressed in the weeks prior to the training workshop. Presentation slides and materials from each breakout that had them can be found [here](#).

- ATTAINS: A Secret Sauce Training Focused on Batch Uploads

This ATTAINS training, intended for individuals who are responsible for entering and/or reviewing data in ATTAINS, covered various tips and tricks for navigating ATTAINS, dealing with common problems, and generally making the life of an ATTAINS user a little easier. Demonstrations were led by Jesse Boorman-Padgett, Dwane Young, and Wendy Reid of EPA Headquarters.

- Open Source Tools for Automating Water Quality Data Discovery and Analysis

This breakout explained how R is being used to perform water quality assessments more efficiently, the EPA's plan to develop an R Tool for Automated Data Analysis (TADA) using common assessment threads across agencies, and how to join the EPA's open source development community. The presentations and demonstrations were delivered by Shelly Thawley of EPA Headquarters and Jake Greif and Cristina Mullin of the ORISE Fellowship Program at EPA Headquarters.

- CWA 303(d) TAS and Insights on Managing a TMDL Program

This breakout began with an overview of CWA 303(d) TAS and the authorities and procedures to obtain it, followed by a panel of staff from different state TMDL programs discussing roles, tasks, and resources to run a TMDL program. BryAnna Vaughan of the Bishop Paiute Tribe moderated the breakout; Dylan Laird of EPA Headquarters delivered the presentation; and the panel consisted of Heidi Henderson of New Mexico, Traci Iott of Connecticut, Paul Lorenzen of South Dakota, and Chandra McGee of Alaska.

- Cross-Program Collaboration

This breakout provided insights on how to work effectively, from processes to interpersonal connections, across CWA programs and with other statutory programs, agencies, and jurisdictions. The panel was moderated by Adam Schempp

and consisted of Barbara Barry of California, Celeste Hockings of the Lac du Flambeau Band of Lake Superior Chippewa Indians, Kristy Fortman of Montana, Will Isenberg of Virginia, and Bonita Johnson of EPA Region 4.

- **Alternative Restoration Plans (ARP) and Category 5-Alt**
This breakout offered an update on examples and lessons learned regarding ARPs and Category 5-Alt, followed by a discussion of opportunities for improvement in ARPs. Amy Feingold of EPA Region 4 and Chris Hunter of EPA Headquarters delivered the presentation and facilitated the discussion.
- **Data Visualization**
This breakout provided examples of how to develop better graphs, charts, and infographics using Excel, Word, Canva, and other free online tools; tips for choosing the right types of graphics; and an overview of how to expand a data communication toolbox in ESRI for spatial and non-spatial visualizations, within and beyond StoryMaps. Presentations were delivered by Emma Gildesgame of NEIWPC, Ross Donihue of ESRI, and Simon Queenborough of Yale University.

Session 7: Breakouts III

This session consisted of six breakouts, each focusing on a different topic. ELI staff selected the topics based on responses in the registration materials and then, with the help of the WPG, developed the respective agendas, including speakers, facilitators, and discussion questions. Participants were assigned to a breakout based on their respective preferences, expressed in the weeks prior to the training workshop. Presentation slides and materials from each breakout that had them can be found [here](#).

- **Assessment Unit Segmentation Practices**
This breakout explored how to develop a national methodology guidance and best practices for states and tribes in segmenting and creating assessment units. Presentations were delivered by Monique Dulac of EPA Headquarters, Jillian Adair of EPA Region 3, Cristina Mullin of the ORISE Fellowship Program at EPA Headquarters, Lesley Merrick of Oregon, Elise Hinman of Utah, and Chris Daugherty of West Virginia.
- **Regional Monitoring Networks: Continuous Data Tools and Management**
This breakout provided an overview of Regional Monitoring Networks, followed by examples of continuous data tools and management: Connecticut's use of game cameras to monitor flow, the U.S. Geological Survey's use of images to estimate flow in headwaters, Minnesota's use of R Shiny to quality control continuous data, and New Jersey's management of continuous monitoring data. Presentations were delivered by Britta Bierwagen of EPA Headquarters, Mary Becker of Connecticut, Ben Letcher of the U.S. Geological Survey, Tim Martin of Minnesota, Bob Schuster and Mike Kusmiesz of New Jersey, and Lucas Marxen of Rutgers.
- **Prioritizing Waters with Improved Approaches**
This breakout offered updates on and lessons from various methods of prioritizing waters, including the Recovery Potential Screening tool and SPARROW, as well as particular considerations and procedures. Adam Schempp of ELI moderated the

breakout, and presentations were delivered by Ashley Beranek and Kevin Kirsch of Wisconsin, Chuck Berger of Louisiana, and Andy Somor of Cadmus.

- **Understanding the Different Types of Plans Available for the CWA 303(d) Program**
This breakout provided an overview of the considerations for selecting between TMDLs, alternative restoration plans (ARPs), and 4(b). Amy Feingold of EPA Region 4 and Chris Hunter of EPA Headquarters delivered the presentation and moderated the breakout.
- **Implementable TMDLs**
Looking beyond just the contents of a TMDL, this breakout used examples to focus on how programmatic timelines and coordination with other programs and stakeholders facilitate the development of implementable TMDLs. Emma Gildesgame moderated this breakout, and presentations were delivered by Heather Husband of North Dakota, Patrick Herron of the Mystic River Watershed Association, and Ivy Mlsna of EPA Region 1.
- **Model Types and Model Selection**
This breakout provided a 101 overview on the different types of models that are available and when to use them, covering a variety of empirical, mechanistic, deterministic, and probabilistic models. Jasper Hobbs of ACWA moderated the breakout, and presentations were delivered by Ben Cope of EPA Region 10 and Erik Makus of EPA Region 8.

Session 8: Communications around the CWA 50th Anniversary

This session, facilitated by Adam Schempp, featured three presenters, each providing their unique perspectives on the Clean Water Act to date and the anniversary ahead.

(1) Eric Monschein, Associate Chief of the Watershed Branch of the Office of Wetlands, Oceans, and Watersheds, EPA Headquarters

Mr. Monschein began his remarks by noting that he has worked in the CWA 303(d) Program office for almost 20 years, so he would use his time to share some of his observations on the contributions of, and the story of, the program from the national perspective.

Mr. Monschein said that, in retrospect, the program seemed young and still was experiencing growing pains in 2003. For example, he elaborated, the program was recalibrating from significant revisions to its regulations, which were soon withdrawn, and significant attention was focused on responding to TMDL constructive submissions lawsuits. Mr. Monschein also explained that the program had only developed about 10,000 TMDLs at the time, mostly in response to litigation, and that the program was in the early stages of consolidating CWA 303(d) and CWA 305(b) reporting requirements into a single Integrated Report, in paper format. He noted that timely submittal and review of those reports was a significant challenge and continued to be for future reporting cycles. On the coordination front, he added that most national program dialogue was limited to discussions between the EPA and what is now ACWA.

Mr. Monschein then elaborated on his perspective of the present-day CWA 303(d) Program, saying it is much more mature than it was when he first started in the office. For example, he explained, the program has three decades of experience; considering that the regulations the program operates under were put into place in 1992. He added that the program has extensive experience with TMDLs now, with tens of thousands developed so far, and most without litigation requirements. Further, the program now has extensive experience with Integrated Reports, and electronic reporting is used instead of just paper. Mr. Monschein also referenced the program's improvement with regard to timeliness of review of 303(d) lists and the apparent improvement in timeliness of Integrated Report submittals for the 2022 reporting cycle. He emphasized that this accomplishment is particularly important now because the information in those reports will help inform the public on the status of the nation's waters for the 50th anniversary of the Clean Water Act.

Mr. Monschein concluded by highlighting the extensive experience the program has gained. He noted that individuals working on the program now have had many years of collaborating with one another, as evidenced by 13 years of this training workshop. Further, paths for tribes to manage their own CWA 303(d) programs have been clarified in regulations. Also, the Vision that the program collaborated on and began to pursue 10 years ago appears to have served the program well. In closing, Mr. Monschein emphasized that, as the 50th anniversary approaches, the CWA 303(d) Program is a story of accomplishment: the program has grown, remained relevant, and continued to demonstrate value. He added that, in addition to this national story, individual states, tribes, and territories have their own success stories about their waters that fully demonstrate the breadth and value of the program for restoring and protecting water quality.

(2) Dwane Young, Chief of the Water Data Integration Branch, EPA Headquarters

Mr. Young began by commenting on the value of the training workshop, specifically the great opportunity that it provides for collaboration and getting to know colleagues. In light of the 50th anniversary, he proceeded to reflect on how far Clean Water Act implementation has come and where it is now. Mr. Young noted that data largely does not go back 50 years to provide a full indication of progress; it goes back 20 or 25 years, generally. He said that everyone has stories and observations throughout their careers that have led them to who they are now in their present-day careers. Mr. Young explained that, when he first started in 1999 as a contractor, monumental efforts were needed to compile information, assemble documents, and accomplish many other routine tasks. As an example, he relayed an experience of picking up, sorting, and scanning paper TMDL documents in EPA Headquarters in 2001 to make them searchable, highlighting how far the program has come.

Mr. Young then asked the audience to think about and reflect on the stories they have, such as species returning and new TMDLs in place, over the next year. He added that everyone telling those stories, especially states and tribes, will be valuable. To further the point, Mr. Young then shared a recent conversation with a Region 6 staff member who said she had used How's My Waterway to mentor a high school student from Texas. He explained that, as a result of evaluating waters in Texas and trying to identify impairment patterns and solutions, the student applied to and was accepted into college for environmental studies.

Mr. Young emphasized how important the work is that the audience members do, that it makes a difference, including bringing new people into the field, to carry the program forward for the next 50 years. To Mr. Young, growing the program is about growing the people involved with it, and he looks forward to seeing where the program goes over the next year and hearing other peoples' stories about the great work they have done.

(3) Tom Stiles, Director of the Bureau of Water, Kansas Department of Health and Environment

Mr. Stiles started his remarks by talking about Congress's seven national Clean Water Act goals, as identified in CWA Section 101(a). He assigned a grade to each of the goals in light of the approaching 50th anniversary:

1. "it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985;" since this goal was not reached by 1985, and still is not, Mr. Stiles gave it an F.
2. "it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water be achieved by July 1, 1983;" while the goal is close to being reached now, Mr. Stiles gave it a D for being late.
3. "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited;" with this goal having been largely accomplished, Mr. Stiles gave it a B+, and maybe an A-.
4. "it is the national policy that Federal financial assistance be provided to construct publicly owned waste treatment works;" Mr. Stiles said that this has been very successful, starting with the construction grants program and then state revolving funds, so he gave it an A-.
5. "it is the national policy that areawide waste treatment management planning processes be developed and implemented to assure adequate control of sources of pollutants in each State;" Mr. Stiles noted that the NPDES program has made this effort largely successful and gave it an A-, despite acknowledgment of some continuing challenges.
6. "it is the national policy that a major research and demonstration effort be made to develop technology necessary to eliminate the discharge of pollutants into the navigable waters, waters of the contiguous zone, and the oceans;" Mr. Stiles gave it an A.
7. "it is the national policy that programs for the control of nonpoint sources of pollution be developed and implemented in an expeditious manner so as to enable the goals of this Act to be met through the control of both point and nonpoint sources of pollution;" Mr. Stiles gave this goal partial credit, saying programs have been developed but not implemented quickly, so program development received an A but implementation and expediency was a D, so a C or C- overall.

Mr. Stiles then took a moment to reflect on the report card he created, noting that, while it is not perfect, the Clean Water Act has made progress and been successful. He said that the next challenge is to get the nation to understand why it has been a success.

Mr. Stiles then talked about two ways to look at achievement. The first, he noted, is based on numbers, such as water quality standards that are binary, that is, either achieved or not achieved

and certainly not graded on a curve. The second, he added, is based more on outcomes than on numbers, suggesting that the Cuyahoga River fire, Earth Day, and Lake Erie dead zones were outcomes that brought individuals to work in this field. They are outcomes that the public can react to, he said. Mr. Stiles highlighted the importance of this fact because, while the public may not know the context of numbers, these outcomes -- such as algal blooms closing beaches -- cause reactions. Thus, telling these stories of outcomes can be a rallying point for individuals working on the Clean Water Act.

Mr. Stiles then circled back to talk more about the three aspects of water quality standards: antidegradation, criteria, and uses. He noted that it is difficult to tell stories of successful criteria because the focus is on magnitude. He explained that uses, such as swimming, fishing, and drinking, offer many opportunities for telling good stories. In the context of wildlife, he added, there are both acute and chronic criteria violations, although acute criteria violations are not dealt with as much anymore, unless there is a large-scale fish kill from a big spill, chronic impairment is a current, and long-term, challenge. However, he continued, the fact that acute violations have largely been resolved is a success, as those are the worst of the problems related to aquatic life. Mr. Stiles reminded everyone that the Clean Water Act only governs a small part of what influences pollution, including elimination, control, and permitting of the discharge of pollutants into waters. He said that, even if the Clean Water Act does a great job, uses will not necessarily fully recover. He expanded on this point, highlighting that recovery also depends on how much the environment has been altered, such as changes in flow and the introduction of new species.

Mr. Stiles then focused more specifically on CWA 303(d) and his role. Although he is the Director of the Bureau of Water in Kansas and the President of ACWA, he started out working on CWA 303(d), which he described as the bridge from data to action. He suggested that it is also the centerpiece for telling stories of success that rely on both data and a better understanding of the physical, chemical, and biological characteristics of water. Mr. Stiles advised participants to think beyond numbers when communicating with the public, as numbers do not stick with people; images, including charts, maps, and curves, do stick with people and thus will be key for showing how far the program has come. For example, he said, otters returning to Kansas rivers or a new wastewater treatment plant showing improved conditions or investments in treatment continue to make the world better and are good stories to share with the public. Mr. Stiles emphasized the importance of showing fewer harmful algal blooms and beach closures and instead showing more expanses of seagrass in the Chesapeake Bay, the return of quality fisheries, and trash cleanups. He acknowledged that public relations are a big challenge for many individuals working within the program, as they are left-brained, but he suggested looking for templates of success and engaging with professionals to carry out the public relations. For further guidance, Mr. Stiles suggested thinking about where TMDLs have been successful, such as the Chesapeake Bay. He recommended that everyone find their own Chesapeake Bay and create an image that rallies resources and support for it, discuss the changes that have occurred because of the CWA 303(d) Program, and do not be shy about sharing the information.

In conclusion, Mr. Stiles admitted that he is not big on looking back, but TMDLs in the 1990s and early 2000s were small and cranked out quickly due to court decrees, and since then, they

have been expanding in depth, detail, and complexity. He added that it is important to acknowledge that fact and pay homage to those who worked on the program in the past, because current work is built on previous work -- noting that, "our successors will one day be thanking the current individuals working in the program."

Mr. Schempp thanked the three panelists, highlighting the value that their thoughts provide in thinking about the 50th anniversary. He suggested approaching communication surrounding the anniversary at local and more regional levels as well as at the national level. He also reiterated the call not only to identify and develop stories but to share them widely over the next year.

Wrap-Up and Send Off

Mr. Schempp thanked the participants for their attention and contributions throughout the training workshop. Then, in another effort to compensate for the virtual environment, he shared a slideshow of photos that participants had submitted during the week in response to the call for images of them and their favorite hikes, walks, recreation areas, or vistas near them. Mr. Schempp then read a couple of the poems submitted by participants answering the challenge issued at the beginning of the training workshop. Subsequently, he invited Emma Gildesgame, Jasper Hobbs, and Jim Havard to share closing remarks and preview what was next for the CWA 303(d) Program.

(1) Emma Gildesgame, Environmental Analyst, NEIWPC

Ms. Gildesgame introduced herself and her organization, NEIWPC, a regional commission that helps Northeastern states promote water quality. She highlighted NEIWPC's webinar series that covers a broad array of topics geared towards supporting states and their CWA 303(d) programs. Ms. Gildesgame noted that the next webinar will focus on how states and tribes can better communicate on CWA 303(d) listing and TMDL issues. She added that NEIWPC is open to webinar topic ideas, and that funding is available if a nonprofit partner or consultant would be interested in presenting. Ms. Gildesgame explained that the majority of the webinars are recorded and accessible on their website or YouTube. She concluded by inviting the audience to contact her with any questions or if they wanted to join the planning team for the webinar series running through 2022.

(2) Jasper Hobbs, Environmental Program Manager, Association of Clean Water Administrators (ACWA)

Mr. Hobbs introduced himself and his organization, ACWA. He elaborated on the work that ACWA does, with particular emphasis on the Watersheds Committee. He explained that the Committee provides a forum for disseminating and discussing various updates, policy changes, and other matters associated with the CWA 303(d) Program. He invited state and territorial participants who do not already join the monthly Committee calls to do so and to contact him with any questions.

(3) Jim Havard, Chief, Watershed Branch, EPA

Mr. Havard began his remarks by thanking the participants for their engagement and noting that he found all of the sessions he attended to be very helpful. He then summarized what he saw as some of the key themes that came out of the training workshop. He started with the general support for and collaborative implementation of the Vision, suggesting that it is a model of cooperative federalism. Mr. Havard added that everyone should be proud of that. He emphasized the importance of finishing the Vision strong, continuing to work on stated priorities while looking ahead to the next iteration of the Vision. Mr. Havard thanked the ACWA Watersheds Committee for providing recommendations for the next Vision. Turning to the potential “focus areas” in the next Vision, he praised the environmental justice plenary session, the associated breakouts, and the available materials. He also highlighted the discussions on climate change, noting that the issue intersects with the CWA 303(d) Program in many complicated ways. Mr. Havard called upon the training workshop participants to think about how climate change impacts underserved communities and how it fits into broader watershed efforts. He suggested prioritizing climate and equity when working on CWA 303(d) Program matters, but acknowledged the difficulty in doing so. Mr. Havard then mentioned some important tools that can provide assistance: the Recovery Potential Screening tool, which is being updated to include environmental justice and climate change, and EJSCREEN, among others. He explained that the EPA will continue to do outreach related to these tools and looks forward to feedback. Mr. Havard then noted that there are key water quality elements to tribal waters, so the EPA is strongly promoting Treatment in a Similar Manner as States (TAS) for the CWA 303(d) Program. He said that a template is available on their website to assist tribes with that application, and he suggested that tribes continue to consult with their respective regions about their intentions for TAS and any questions they might have.

Mr. Havard concluded by expressing his hopes of seeing everyone in person at a future CWA 303(d) Program workshop, adding that he misses the in-person interaction. He noted his enjoyment of the virtual social event of the week, appreciating how much technology has improved. Mr. Havard thanked the individuals working behind the scenes and everyone else who helped make the training workshop possible. As a final take-home point, he emphasized the importance of state water quality data and storytelling, explaining that they are always vital, but especially in the context of the upcoming 50th anniversary of the Clean Water Act.

Mr. Schempp wrapped up the training workshop by thanking the EPA for supporting the event; the WPG for steering its development; and the presenters, facilitators, moderators, and scribes for making it run well. He then, once again, thanked the participants for their time and efforts throughout the week.

APPENDIX 1: TRAINING WORKSHOP AGENDA



ENVIRONMENTAL LAW INSTITUTE®

AN INDEPENDENT, NON-PARTISAN ENVIRONMENTAL EDUCATION AND POLICY RESEARCH CENTER.

2021 NATIONAL CWA 303(d) AND DATA MANAGEMENT TRAINING WORKSHOP

THOUGHTFUL STEPS ON THE PATH AHEAD

June 7-10, 2021

VIRTUAL TRAINING WORKSHOP AGENDA

**This project is made possible through a cooperative agreement with the
United States Environmental Protection Agency**

PURPOSE OF THE TRAINING WORKSHOP

To provide state, tribal, and territorial water quality program staff with an opportunity to learn about and contribute to strategies for improving the process, products, and outcomes of Clean Water Act Section 303(d) listing and TMDL programs and beyond

TRAINING WORKSHOP OBJECTIVES

- Learn about and contribute to the **process for developing** the next iteration of the CWA 303(d) Program Vision
- Learn about and contribute to the **ideas and methods for better incorporating environmental justice and climate change considerations** into water quality data management, assessment, and restoration and protection activities
- Learn and contribute **techniques for collaborating** across jurisdictional boundaries and with other programs, agencies, and organizations
- Develop **technical skills** in information management
- Learn about **tools and approaches for communicating** water quality information, including with regard to the 50th Anniversary of the CWA
- Receive **updates on research, materials, and legal developments** relevant to the CWA 303(d) Program
- Expand and improve **communication among the states, tribes, and territories and with EPA Regions and Headquarters** by enhancing the network of water quality data management, listing, and TMDL professionals

OUTPUT

A final report summarizing the proceedings of the training workshop, which may assist in Vision planning and serve as a reference for program personnel implementing their responsibilities consistent with the Vision

AGENDA

(All Times Eastern Daylight)

Monday, June 7

- 1:00 pm – 1:30 pm **Welcome**
- 1:30 pm – 3:00 pm **Session #1: CWA 303(d) Program Implementation – Present and Future**
EPA and state staff will provide key CWA 303(d) Program updates before focusing on the future, including a summary of state recommendations (via ACWA's research) for the next iteration of the CWA 303(d) Vision and the process ahead for developing it.
Presenters: Jim Havard, EPA HQ; Traci Iott, Connecticut; Jeff Berckes, Iowa; Rosaura Conde, EPA HQ
- 3:00 pm – 3:30 pm **Break**
- 3:30 pm – 5:00 pm **Session #2: Environmental Justice**
EPA staff will provide an overview of what environmental justice is, why it is important, some of the key terms, the focus of the new administration, and initiatives at the EPA, followed by a panel of state, tribal, and NGO staff discussing how they are advancing environmental justice in their water quality work.
Presenters: Bonita Johnson, EPA Region 4; Charles Lee, EPA Office of Environmental Justice; Nettie McMiller, EPA HQ; Herb Lee, Pacific American Foundation; Kari Hedin, Fond du Lac Band of Lake Superior Chippewa; Helen Waquiu, Minnesota; Ken Weaver, Florida

Tuesday, June 8

- 1:00 pm – 2:30 pm **Session #3: Climate Change**
EPA staff will provide an overview of the new administration's focus regarding climate change, what the EPA Office of Water is doing, and various ways that climate is affecting CWA 303(d) Program work, followed by presentations by state staff on how they are incorporating climate considerations into their water quality work.
Presenters: Miranda Chien-Hale, EPA HQ; Stephanie Santell, EPA HQ; Justin Williams, Virginia; Kristy Fortman, Montana; Kevin Kirsch, Wisconsin
- 2:30 pm – 3:00 pm **Break**

3:00 pm – 4:30 pm

Session #4: Climate Change and Environmental Justice Discussions and Trainings

Training workshop participants will attend one of the following webinars.

- Environmental Justice and Water Quality Data Management Tools
- Tools for Environmental Justice: EJSCREEN and EnviroAtlas
- Considering Climate Change and Environmental Justice through the Recovery Potential Screening Tool and Watershed Index Online
- Accounting for Climate Change: Approaches and Lessons
- Prioritizing Waters in Light of Climate Change and Environmental Justice Considerations
- Environmental Justice and Standards, Monitoring, and CWA 303(d) Listing
- Climate Change and Standards, Monitoring, and CWA 303(d) Listing
- Environmental Justice and TMDL Development and Implementation
- Climate Change and TMDL Development and Implementation

4:30 pm – 5:30 pm

Virtual Reception

Wednesday, June 9

Various Times

Regional Breakouts for Regions 1, 3, 4, 5, 6, and 8

1:30 pm – 3:00 pm

Session #5: Breakouts I

Training workshop participants will attend one of the following webinars.

- ATTAINS: A Training on TMDL Entry
- How to Answer Common Questions with Available Data Tools
- How Tribes Can Use the CWA to Protect their Water Resources
- Litigation on CWA 303(d) Listing and TMDLs
- Continuing Planning Process and Water Quality Management Plan Requirements: Perspectives of EPA Region 6, New Mexico & Texas
- Storytelling for Impact
- Updates on Protection

3:00 pm – 3:30 pm

Break

3:30 pm – 5:00 pm

Session #6: Breakouts II

Training workshop participants will attend one of the following webinars.

- ATTAINS: A Secret Sauce Training Focused on Batch Uploads
- Open Source Tools for Automating Water Quality Data Discovery and Analysis
- CWA 303(d) TAS and Insights on Managing a TMDL Program
- Cross-Program Collaboration
- Alternative Restoration Plans (ARP) and Category 5-Alt
- Data Visualization

Various Times

Regional Breakouts for Regions 9 and 10

Thursday, June 10

1:00 pm – 2:30 pm

Session #7: Breakouts III

Training workshop participants will attend one of the following webinars.

- Assessment Unit Segmentation Practices
- Regional Monitoring Networks: Continuous Data Tools and Management
- Prioritizing Waters with Improved Approaches
- Understanding the Different Types of Plans Available for the CWA 303(d) Program
- Implementable TMDLs
- Model Types and Model Selection

2:30 pm – 3:00 pm

Break

3:00 pm – 3:45 pm

Session #8: Communications around the CWA 50th Anniversary

EPA and state staff will identify some important contributions that the CWA 303(d) and data management programs can provide, some of the stories that can be told of the programs in the life of the Clean Water Act, ways of telling those stories, and the importance of this moment for communication.

Presenters: Eric Monschein, EPA HQ; Dwane Young, EPA HQ; Tom Stiles, Kansas

3:45 pm – 4:30 pm

Wrap-Up and Send Off

APPENDIX 2: COMPILATION OF TRAINING WORKSHOP PARTICIPANT EVALUATIONS

Eighty-three workshop participants completed an anonymous Participant Evaluation Form. The combined numerical results from the evaluations indicate an overall event rating of “Very Good-to-Excellent” across all categories except Group Interaction, which received an average rating of “Good-to-Very Good.” In addition to the numerical responses, we received many written comments, which are reproduced here.

Participant Evaluation Form: Compilation

Scale: 5 = Excellent, 4 = Very Good, 3 = Satisfactory, 2 = Fair, 1 = Poor

The Workshop—Overall

Information Presented	5 (47) 4 (29) 3 (4) 2 (3) 1 (0) AVG: 4.42
Workshop Materials	5 (43) 4 (30) 3 (7) 2 (3) 1 (0) AVG: 4.36
Workshop Organization	5 (54) 4 (23) 3 (3) 2 (2) 1 (0) AVG: 4.56
Group Interaction	5 (16) 4 (31) 3 (29) 2 (6) 1 (1) AVG: 3.67
Session Facilitation	5 (52) 4 (23) 3 (6) 2 (1) 1 (0) AVG: 4.51
Videoconference Platform and Technology (GoTo)	5 (30) 4 (40) 3 (9) 2 (3) 1 (1) AVG: 4.19

Comments:

- All the presenters were very knowledgeable, and I greatly appreciated the sharing of handouts and presentation PDFs. ELI did a great job facilitating, and group interaction was pretty on par for these types of events. I find seeing messages in GoTo difficult along with some other features. I also wish the recordings could be available for longer than two weeks. But overall, thank you for making every session easily accessible!
- Keep this conference virtual, so many more people can benefit from it!
- I'm sure it couldn't be helped, but it's too bad we couldn't see the other participants.
- Great job and organization!
- Seems like presenters and moderators still needed more practice with the technology

- Found the sessions that I attended to be EPA presenter heavy. Disappointed that there was less of a state perspective. Again, maybe just the sessions I attended but didn't feel like I got the same kind of state to state interaction I have had in the past.
- I guess we are all now online meeting experts so it was smoother than last year. I think it would be good to keep some parts of Cybertown available to the wider online audience that cannot get to Shepherdstown
- Would have liked to have seen other participants in a session -- don't think that's available in GoTo.
- Great workshop! I'm glad I was able to attend these sessions. I've learned a lot hearing from TMDL staff in other states and EPA offices. The discussions around diversity, equity and climate change and how those issues interact with the TMDL program were really helpful and will be useful as we adapt our TMDL program to incorporate those topics. Thanks to everyone who participated in organizing and presenting this workshop.
- Great meeting and organization. For a virtual format, very few tech issues.
- I would prefer a platform where I can change the background so everyone is not in my kitchen.
- Great organization! Was super clear what webinar link to click on to get into the right session - the calendar invites were useful for that. The agenda was streamlined and the time-sharing between east and west coast was great. I always got a lunch break :) And the sessions and days were not too long. I'm also very glad to see that almost all the sessions were recorded, so I can listen in on breakout sessions I wasn't able to participate in. Very minimal technical glitches too! Great job! I really enjoyed this training!
- I felt like the workshop was very well organized and the content presented was highly relevant, timely and engaging. At times, I got the impression that some speakers had a lot more to say and were trying to cram a lot of information into shorter sessions, so it was a bit hard to keep up sometimes. In my breakout session for session 4, a lot of the participants (myself included) were new and "just listening" and that led to only a couple of people having meaningful contributions to the discussion - I wonder if, in the future, we could do another breakout just for newbies/younger participants, that would be discussing general concepts and getting a feel for the program as a whole?
- First off, Cybertown was a success! It was organized really well, and most of the sessions were great. I especially appreciate that most of the breakout groups were recorded because I was interested in more than one during a session. I plan on watching the ones that I missed next week. Thank you.
- Thank you for an amazing workshop. Every presentation and break-out session was very very helpful to me by either giving a big picture or showing ways to do my tasks. Thank you!
- I would have liked to have more breakouts or opportunities to have conversations with some of the presenters.
- The workshop was great. The virtual workshop has the benefit that so many more people can attend. However, it really cuts down on interaction.
- A lot of the sessions I attended didn't really seem to fall into what I would call a workshop. They were more of a discussion or symposium. In that regard, it was misleading for me. Also, it needed to be clearly labeled when signing up if a sessions would be an open discussion. I had to decline a meeting after getting the agenda because

I was setup for video and audio. Plus, that particular one I wanted to hear what other states were doing, not have to share about the lack of what my state is doing.

- Although there were some technical difficulties, everyone did a great job. I know this is a ton of work to put together. Thanks to everyone involved.
- There always seems to be a couple of webinars occurring at the same time that I would like to attend. I wonder if it would be difficult to vary when sessions are offered instead of offering all the similar session topics at the same time.
- I wish GoToWebinar enabled people to see the list of attendees and have more dialogue in the chat. I enjoyed the use of Poll Everywhere to help get people engaged.
- Seemed to work better when only one person (presenter) had their camera on, otherwise a little glitch.
- Making the slides/materials available to download was great, thank you for that!
- I was really impressed with all of the sessions. It's obviously a lot of information, but I thought they were all presented well. There's always going to be a technological glitch, too, whether in person or virtual. I thought everyone handled those well. Also, I wouldn't have been able to go in person, so I hope we keep on having virtual events.
- It is hard to be fully interactive and engaging in a virtual setting. I think the organizers did the best they could within the limitations of a virtual environment. I liked that the links to most of the sessions were included in the Agenda, so participants could change sessions if they chose. I also like that most of the sessions were recorded, since there were multiple sessions that interested me in a couple of time slots.
- Doing this remotely has been fun and beneficial while we couldn't meet in person, but I'm looking forward to seeing faces in person some day soon! Great job on all fronts.
- GoTo works okay, but I did find it kind of clunky (sorry I can't think of a specific example!). Group discussions are so hard in the virtual format, but I can't think of a way to improve it. Anytime we were depending on discussion and people asking questions things got kind of awkward.
- Great workshop, including the virtual platform. We were able to have a number of staff from our agency attend, since there were no costs or administrative burdens from travel.
- Great workshop as always. Definitely ready to meet again in person though. The discussion element is never as good. People ask questions and answers are provided, but in person those same questions may lead to a deeper discussion amongst the group and ideas are shared. Hopefully we won't have to do a virtual workshop again, but if we do then I suggest a different format than GoToMeeting. Something with a chat feature would be more useful so the audience can interact with each other or share their own experiences.
- I was very impressed with the organization of this virtual conference. It was very well planned out and orchestrated with very few glitches. Overall a very positive experience.
- Not sure if it was on my end or not, but the sound did not link up with what was being said. It was very distracting.
- I received too many scheduling and follow up emails on for the sessions. It was confusing to me. I participated in other workshops \ conferences that produced a person specific agenda that had times and links on it so I one document that directed me to all of my sessions.
- Technology issues were to be expected.

- The information, materials, organization, facilitation, and interaction during small breakout sessions were great; however, I didn't like that I couldn't see who else was in the session when we were using GoTo. Even as a panelist, I could only see other panelists and organizers, not who was attending. It made those sessions somewhat lonely and isolated. Also, not being able to see the comments/questions my fellow attendees put in the box and not being able to chat directly with fellow attendees/the whole group added to the isolation.
- I enjoyed the workshop, especially the wrap-up video! I can't wait for the next one and am looking forward to attending in Shepherdstown! I hope we can send two people next year. As a Section Manager it would be great to attend with my TMDL Team Leader.
- Great job putting this together. While a virtual meeting can never replace the informal connections made in person, this platform was very effective in providing the formal presentations.

B. Goals, Outcomes, and Expectations

How effective was the workshop in satisfying the stated objectives?

5 (39) 4 (34) 3 (4) 2 (1) 1 (0) AVG: 4.41

How successfully did the workshop meet your own expectations?

5 (39) 4 (30) 3 (6) 2 (3) 1 (0) AVG: 4.33

Comments:

- I appreciated the balance of presentations that covered "the basics", and ones that dove deeper and highlighted specific examples.
- Timely topics, relevant presentations.
- Better than last year.
- Sharing our experiences with other states and EPA offices provides new perspective on our work. Also, the discussions on diversity, equity and climate change and how those issues will impact our program in the future is very timely and helpful.
- This being my first 303(d) workshop, I was hoping for more finished tools and clear approaches relevant to my position. Hearing about in-development procedures was helpful, and overall the workshop was worth my time.
- As this was my first 303(d) workshop, I was not quite sure what to expect. A lot of the content, especially discussions about TMDLs themselves, was a bit over my head, but I still think that I learned a lot from the discussions.
- I got even more than I expected based on presentations and break-out sessions titles and descriptions.
- A lot of the sessions I was more curious to learn about how states got to that point and have them give advice. Instead, it was more of a look what I am doing, but didn't really get to any practical advice on how to apply it my state.
- I'm a little disappointed that all of the EJ and climate breakouts were overlapping time-wise, especially since many of them were discussion format and can't be viewed later.
- I thought the whole event, all four days, was excellent. I am impressed!

- I experienced great conversations with the attendees in the sessions I attended, so while different than usual, the networking was still great.
- I appreciate links to the videos being shared. It is great having the ability to watch the sessions that I could not attend. There is always so much good material that I always wish that I could be in two places at once.
- Workshop was very successful at meeting expectations. I felt it was very well organized and stayed focused on the topics being addressed.
- Too much on vision. I know that was a focus, but that is only a small part of what our assessment and 303(d) programs work with.
- Great conference, I always feel like I learn a lot from this conference, whether it's technical information, learning a new way of accomplishing a goal, or gaining a better understanding of different viewpoints.
- I thought the workshop was well organized and executed.

C. Specific Sessions

Welcome

5 (35) 4 (28) 3 (11) 2 (0) 1 (0) AVG: 4.33

- Great to have Radhika participate.
- Had sound issues with the introduction video.

Session #1: CWA 303(d) Program Implementation – Present and Future

5 (26) 4 (35) 3 (10) 2 (2) 1 (0) AVG: 4.20

- Rather than speeches, I prefer all talks (unless a panel) include slides.
- Unclear about timeline for states to develop/submit new Vision doc.
- The updates flew by really fast, but then other parts seemed to drag on.
- I liked the presentation and found it very helpful. I am looking forward to understanding Vision 2.0 in more detail.
- Good synopsis of where we have been and where we are headed.

Session #2: Environmental Justice

5 (37) 4 (19) 3 (11) 2 (2) 1 (0) AVG: 4.29

- I especially appreciated hearing from tribal representatives about their perspective on interacting with the TMDL programs and broadening our perspectives as the TMDL programs goes forward in the future.
- I liked the session overall, but have trouble applying it to 303(d).
- This was a great panel. It provided a very interesting and multifaceted set of information and perspectives.
- I really enjoyed this session, especially Herb Lee's presentation on the fishpond in Hawaii and the importance of biocultural restoration and place based learning. However, I did

not like Ken Weaver's presentation. Also, I would have liked to see more focus on how systematic racism has led to environmental justice issues.

- Best large group panel by far, really great discussion and pulling from issues that covered the country.
- Some of the power point information was very dry. However, I thought the Mr. Herb Lee's presentation was interesting.
- Fascinating discussion.

Session #3: Climate Change

5 (31) 4 (28) 3 (12) 2 (1) 1 (0) AVG: 4.21

- Application to 303(d) is a little tough.
- Great presentations on how to consider climate change in our work and examples how states do it. Very helpful. Thank you!
- Our program is still in the "storming" stage (pun intended). States appear to be looking to EPA for "guidance" and tools - we run the risk of paralysis because the issue is so big. We really need to focus on how cumulative efforts can get to the problems of CC.
- Still hoping to watch this recording. Heard good feedback from those who attended.
- I think that we are still grappling with how climate change will impact our jobs, and how to handle it.
- It was great to see the work being done already in different states to address climate change.

Session #4: Climate Change and Environmental Justice Discussions and Trainings

Environmental Justice and Water Quality Data Management Tools

5 (0) 4 (0) 3 (2) 2 (1) 1 (0) AVG: 2.67

- I don't think the breakout description matched what actually happened in the webinar. I was under the impression that more tools were going to be highlighted. And during the discussion section, the moderator was really struggling to engage the audience.
- The facilitators offered many options for attendees to speak up and interact, but the audience was very quiet. Only a few attendees spoke up. I think the topic was pretty new and attendees didn't have enough experience to provide meaningful info so they chose to stay quiet.

Considering Climate Change and Environmental Justice through the Recovery Potential Screening Tool and Watershed Index Online

5 (0) 4 (4) 3 (1) 2 (0) 1 (0) AVG: 3.8

- Too many similar topics happening at the same time.
- I was initially signed up for the Climate Change and Standards... breakout session, but switched after the moderator clarified that the focus had narrowed to take out the standards and monitoring part. Since that was what I was most interested in, I switched breakout sessions. It was nice to have the option to switch sessions, but would have been nice to know in advance about the change in topic focus.
- I thought this was interesting. Plan to look more into the information.

Tools for Environmental Justice: EJSCREEN and EnviroAtlas

5 (5) 4 (5) 3 (0) 2 (0) 1 (0) AVG: 4.5

- This was a great introductory explanation and demo!
- The tools are great. I could sort of see how the state could use these to prioritize TMDLs.
- Good overview of the tools.

Accounting for Climate Change: Approaches and Lessons

5 (1) 4 (3) 3 (3) 2 (0) 1 (0) AVG: 3.71

- It was helpful to hear how other states incorporate climate change into their programs (especially how each state chose to talk about climate change within documents).

Prioritizing Waters in Light of Climate Change and Environmental Justice Considerations

5 (4) 4 (5) 3 (1) 2 (0) 1 (1) AVG: 4.0

- Nice to have a discussion session and interact with others. Well done.
- As mentioned previously, it was not made clear this was an open discussion while signing up. I do not have the set-up to do this, and I also didn't want to talk about the lack of what my state is doing.
- Though the discussion was engaged and people shared interesting anecdotes, we mainly talked about challenges (which is useful), but we didn't really get into how to prioritize. That said, EJ and Climate Change are both very complex and challenging topic areas to address in comprehensive and meaningful ways.
- This was a tough one, hard topic to discuss. I didn't feel prepared, or like I had anything to contribute. Still some good points made during this discussion. Not as engaging as other sessions though.

Environmental Justice and Standards, Monitoring, and CWA 303(d) Listing

5 (3) 4 (1) 3 (0) 2 (0) 1 (0) AVG: 4.75

- It was very interesting!
- The session gave me a pretty good idea of what EJ aspects are in relation to my work and where to start to incorporate EJ aspects into our programs.
- This session provided some great discussion questions, and the panel put forth some really good points and other questions to take back to my group so that we can further improve upon our work on incorporating EJ in our WQS language updates and proposals, monitoring program, potential listings and reporting.

Climate Change and Standards, Monitoring, and CWA 303(d) Listing

5 (8) 4 (4) 3 (0) 2 (0) 1 (0) AVG: 4.67

- Very good discussion.
- Good intro to this difficult topic.
- I liked the format of the smaller session that allowed participants to communicate more freely. It was closer to being an in-person meeting.
- The facilitator did a great job of trying to include everyone, encouraging people to speak up and asking speakers to refine or follow-up on unclear comments. I appreciated the chance to join this discussion and hear from others.

- Great discussion. Facilitator did a good job of staying on track. Good discussion topics/questions. Was very helpful.
- It was difficult to keep the discussion going, but I thought it went well.
- Excellent and engaging session.

Environmental Justice and TMDL Development and Implementation

5 (0) 4 (4) 3 (1) 2 (0) 1 (0) AVG: 3.8

- I started off in EJ and TMDL Development but felt the conversation was too targeted at states (especially the polls), so I quickly lost interest. I then transferred to EJSCREEN and EnviroAtlas, which I thought was a better use of time to learn about.
- Great presentations and information.

Climate Change and TMDL Development and Implementation

5 (6) 4 (8) 3 (1) 2 (0) 1 (0) AVG: 4.33

- Unfortunately, everyone wanted to hear what everyone else was doing, but no one really had examples of their own.
- This was the topic most relevant to me and my work. I found it very engaging!
- I was a little disappointed that there were few ideas about how to address CC in TMDLs, but at least I feel like we are not as far behind other states as I thought. Additional guidance from EPA and perhaps regional climate change scenarios/forecasts/projections would be helpful.
- Unfortunately, not many people showed up to the small session – it would have been better if more state representatives had been present. Kristy was great at moderating even the very small group that we had.

Session #5: Breakouts I

ATTAINS: A Training on TMDL Entry

5 (3) 4 (5) 3 (0) 2 (2) 1 (0) AVG: 3.9

- This information was very helpful, and I'm really glad it included a presentation about the ATTAINS TMDL batch upload.
- It was not what I was expecting. I feel like it could have used more of an intro. It seemed like it just kind of jumped into the training without a lot of background.
- The presenters knew the material very well.

How to Answer Common Questions with Available Data Tools

5 (11) 4 (5) 3 (0) 2 (0) 1 (0) AVG: 4.69

- Opened my eyes to new tools I had never heard of or seen.
- Good reminder of options I (kinda) knew about and intro to new ones.
- This was a good refresher of all the different applications at our disposal to help us do our work. I don't recall having seen the ATTAINS Geospatial services demonstrated before.
- Presenters were excellent, demos were helpful, provided useful resources, and session was on schedule. Very nicely done.
- These facilitators did a GREAT job providing demos of available tools, however it feels like more data are available for the East Coast compared to the West Coast, so

unfortunately some of the existing tools might not be as useful (in the current form) for all regions.

- Great Information! So much covered and so helpful to highlight different questions and which tools are best suited to answer each question.

How Tribes Can Use the CWA to Protect their Water Resources

5 (1) 4 (3) 3 (0) 2 (0) 1 (0) AVG: 4.25

- Thanks for including Tribes in the discussion.
- Great to have two tribes-focused breakout sessions! Great to hear about and discuss the challenges and how to interface with 303(d) and TMDLs without tribal TAS to administer it directly.
- I feel like this went really well. I'm curious as to what other tribal staff took away from the discussion.

Litigation on CWA 303(d) Listing and TMDLs

5 (3) 4 (7) 3 (0) 2 (1) 1 (0) AVG: 4.09

- Thoughtful, informative. A lot of information in a short time.
- The litigation presentation was the best one I attended by far. Great presentation. Could have had more time allotted to this or spread over 2 sessions. Very helpful. Presenters were great.
- Great info, but way too much content for the time available so some topics did not get covered, and it seemed pretty rushed.
- This was really heavy on the listing cases and "constructive TMDLs" (as if we know what that means).
- The litigation conversations are always fun. Recommendation for if this type of breakout is held again would be to include someone from EPA's TMDL Program on the panel in addition to the attorneys. There were a few relevant questions asked that the attorneys couldn't answer since they don't write TMDLs themselves.

Continuing Planning Process and Water Quality Management Plan Requirements: Perspectives of EPA Region 6, New Mexico & Texas

5 (4) 4 (4) 3 (1) 2 (0) 1 (0) AVG: 4.33

- I was a panel member. I think a presenter who does NOT use their WQMP would have been useful.
- Interesting to see what other states are doing and how they are able to combine documents.
- The information was good, but EPA slides were too wordy and delivery was distracting.
- Excellent presentations and information!

Storytelling for Impact

5 (12) 4 (4) 3 (2) 2 (0) 1 (0) AVG: 4.56

- Very engaging. Fresh approach to thinking about storytelling.
- Made me think that having a story told through a video about celebrating 50 years of the CWA would be great way to celebrate the anniversary.
- Was a half hour too long, but great speaker.

- Fabulous. I even went to office hours afterwards.
- Not sure how I will use this for work yet but very good life info.
- This was such a fantastic session. I've attended several virtual conferences and this was tops. Very well done presentation. Really put into words several concepts in my head. Thanks for putting this one together!!
- Great presentation. Unfortunately, I didn't have time for office hours; it would've been great to have more time for questions during the breakout time. One of those that in-person would have worked great...but still great speaker and content for this session.
- John's presentation was excellent, as was his delivery. Such a wonderful speaker, and I thoroughly enjoyed his talk.
- I thought this presentation and topic was great!
- Unexpected, entertaining, and very informative presentation.

Updates on Protection

5 (3) 4 (1) 3 (0) 2 (0) 1 (0) **AVG: 4.75**

- I would stick with a Q&A instead of breakout groups.
- We had a great discussion when we split into groups about what states would need from EPA in order to start working on protection plans.

Session #6: Breakouts II

ATTAINS: A Secret Sauce Training Focused on Batch Uploads

5 (5) 4 (1) 3 (0) 2 (0) 1 (0) **AVG: 4.83**

- Learned a lot, very practical and very applicable.
- They did a great job with this. Much better than last year.

Open Source Tools for Automating Water Quality Data Discovery and Analysis

5 (11) 4 (8) 3 (1) 2 (0) 1 (0) **AVG: 4.5**

- Can we have the TADA tool now please?!
- This session was organized really well, and the topic was very interesting!
- I think this was more of feedback from more people and other states on their needs for the Open Source Tool, but is also something to look forward to in the next few years as it is developed and worked on more.
- Not a good session for me; should have chosen a different one in retrospect. Likely good for other participants.
- It was exciting to hear that these tools are being developed. I had not heard about the development of them until this workshop.
- Presenters did a good job, but it was hard to evaluate given the completed version of the tool isn't ready. Still, I'm looking forward to taking it for a spin once it's up and running. Thanks so much to those involved for their work! It does not seem to be a trivial task by any means, but I think the outcome will be a very useful tool for states and tribes.
- TADA is very interesting, I can't wait to learn more!
- As above, I get that these are in development, but what I need are finished tools or other resources. Still, I'm excited for what is in development.

- Really good information; my only frustration is that these tools won't be available to the public for some time.
- Useful information for someone like me who is getting started in using open source software.

CWA 303(d) TAS and Insights on Managing a TMDL Program

5 (3) 4 (2) 3 (0) 2 (0) 1 (0) AVG: 4.6

- I was a panel member. Great group questions.
- Great to hear about what it would take to run a TMDL program. I realized during this session that I didn't really know all the requirements - it might be nice to have a quick 10-minute 101 that would go through the different steps and requirements. As a tribal employee, we have to always be aware of and balance increased authority and responsibility with the required workload and staff time needed to implement. Specifics on how much time that takes and what the timeline is/should be would be useful.
- Well-rounded with good questions from participants.

Cross-Program Collaboration

5 (3) 4 (1) 3 (2) 2 (0) 1 (0) AVG: 4.17

- I expected to hear how to work across CWA programs as I am also a 401 coordinator. The session was more about people skills in communicating with others, but I still got a lot of useful advice from the session. After all - communication is extremely important!
- This panel was great, very engaging. All panelists did a great job.
- Outstanding panel discussion who provided valuable insights.

Alternative Restoration Plans (ARP) and Category 5-Alt

5 (10) 4 (8) 3 (3) 2 (0) 1 (1) AVG: 4.18

- Well done!
- Only EPA presenters. Alts are a state driven/led approach and therefore I would have liked to have seen a state presenter.
- Good information that is needed, but would be nice to have some newer information. Maybe more specifics on new TMDL alt plans? I think at this point hearing more specific examples would be most helpful.
- Nice overview and good ideas. Appreciate having both the national and regional perspectives.
- Please continue to update the Compendium of approaches. Early on, most of the examples were NPS Success Stories, 2-page summaries that were not particularly useful. It is better to have access to the full plans to see how other states are addressing alternative approaches.
- This was very helpful for someone new to this.
- I think this was the most informative session for me.
- Great session. Amy and Chris did a great job explaining what ARPs are, considerations for ARPs, and how they can be related to other programs.
- Always interesting to see how states are developing ARP since they are still a relatively new concept. The presenters were very knowledgeable, and I appreciated their responses to questions.

- Very relevant information from states.

Data Visualization

5 (14) 4 (2) 3 (2) 2 (0) 1 (0) **AVG: 4.67**

- This was a little too entry level/beginner for me. I expected more examples of graphics packages connected to models and how they work. Perhaps I didn't understand the description of the breakout.
- This was great! I would love to hear more or have hands-on experience with current work projects.
- So good! Went WAY too fast. This could be a whole day seminar. Need more training in StoryMaps.

Session #7: Breakouts III

Assessment Unit Segmentation Practices

5 (14) 4 (4) 3 (1) 2 (0) 1 (0) **AVG: 4.68**

- ACWA needs to really explore what programs are doing with AUs. The three presentations were really informative, but all three sounded way too difficult, time intensive, and flat out painful. I think we need to hear from programs where it is not painful.
- In my opinion, this was the most relevant and interesting topic of the week.
- Great to hear how other states are doing and very helpful exchange of ideas.
- There were some technical glitches. This session could probably be done again next year to see what the outcomes of implementing new segmentations is and see what lessons have been learned, changes made, suggestions...
- I felt like there could have been more diversity for this one.
- This was really eye-opening. Getting states together to talk about segmentation practices really helped us answer some of the questions that have been coming up for us.
- I had no idea people broke out Assessment Units in so many different ways. I would love it if EPA could have some kind of facilitated groups for some of these common IR and assessment topics such that, if I'm working on one topic and can be in touch with others that are working on the same topic. For example, we've been re-segmenting and assigning spatial data to our AUs, and understanding how other people do it would have been helpful for me.
- This was very informative, and I would be interested in learning more as we look to potentially do our own re-segmentation work.
- Very interesting.
- It was interesting to hear how other States define and resegment their Assessment Units.
- Great presentations.

Regional Monitoring Networks: Continuous Data Tools and Management

5 (5) 4 (2) 3 (0) 2 (0) 1 (0) **AVG: 4.71**

- Mary Becker Is amazing.
- This session was my favorite by far.

- Again, VERY cool demos! It would be great to learn more about how the tools/dashboards are built and how to modify them for specific needs. Open source is key for being able to share these types of tools.
- This session had a mix of finished tools (even if examples) and some resources to check out.

Prioritizing Waters with Improved Approaches

5 (2) 4 (7) 3 (0) 2 (1) 1 (0) **AVG: 4.0**

Understanding the Different Types of Plans Available for the CWA 303(d) Program

5 (11) 4 (4) 3 (0) 2 (1) 1 (0) **AVG: 4.56**

- Clear, helpful.
- Great session. The "if you have" section was great. I wish this part of the session had more time. I feel like it could have the potential for great discussion. Maybe a whole webinar discussing just this (with example plans)?
- This was very helpful for someone new to this.
- If you would ask to rank sessions I would rank this one the highest. For me it gave the best big picture of a pollution and how CWA deals with it, mostly during discussion part. The discussion was excellent, and the answers were too. I am waiting for that talk to be continued. It also gave me that long-sought connection between CWA Sections 401 and 303(d) and completely answered my question about differences between TMDL, 4(b), and 5-alt. Thank you!
- Good content. I maybe should've checked out another presentation. I felt I heard most of this before, but the Q&A was great. Even though I didn't decide to switch to another session, I love there was the option.
- Great explanation of 4b versus ARP and 5-alt.

Implementable TMDLs

5 (1) 4 (9) 3 (2) 2 (0) 1 (0) **AVG: 3.92**

Model Types and Model Selection

5 (5) 4 (3) 3 (0) 2 (0) 1 (0) **AVG: 4.63**

- Good overview, but more examples would make it more effective; cost ranges also would be helpful.
- Great session! started from the basics and quickly built up to topics that I can immediately put to use!
- The presenters knew the material very well.
- Good presentation, but maybe a little too basic for this audience. I think we would be more interested in having a discussion about specific models to address specific pollutants or issues. TMDL developers are already familiar with modeling concepts and what models are out there, but there are so many that we can use better advice on what models are commonly used for what purposes. Those that EPA sees most frequently and results in approval decisions.

Session #8: Communications around the CWA 50th Anniversary

5 (27) 4 (23) 3 (10) 2 (2) 1 (0) AVG: 4.22

- Tom Stiles is always inspiring. I'm glad he continues to stay involved in these workshops.
- I appreciated Dwane Young's storytelling on the CWA 50th anniversary. Looking back and looking forward.
- Rather than speeches, I prefer all talks (unless a panel); include slides.
- Give Tom Stiles 3 hours next time. I could listen to his words of wisdom all day.
- Tom Stiles -Classic!
- Could have used some more visuals.
- Great.
- Honestly, I listed to it in the background as I coded R. Could be, however, that I formerly worked in academia and taught CWA history in a class and just couldn't get that invested in something I'm familiar with.
- Excellent historical overview of the 303(d) program.
- Did not attend this day.
- Did not attend.
- Session started strong but felt like it started to lose momentum towards the end.

Wrap-Up and Send Off

5 (34) 4 (23) 3 (7) 2 (2) 1 (0) AVG: 4.32

- I appreciate ELI's efforts to add opportunities for team building and maintaining personal connections during this virtual conference. That is no easy task. It's an important element that makes these workshops beneficial and rewarding. Most of my learning comes from discussions with other attendees.
- Nice ending
- Thanks!
- You need a category for "nA: didn't get around to watching this in addition to 1-5"
- Loved the song :)
- Jim doesn't tell us everything that happened during the week. We were there. What are the next steps? actions? plans?
- Slide show with images was great, poems, too, and the Shepherdstown to Cybertown video as well.
- Thanks to Adam and ELI for all their great work.
- Great wrap-up. Loved the pics and poems!
- It was cheesy; but that's what made it good.
- The music video was amazing. Even though it was a cybertown and a virtual workshop, the sadness when it ended was very palpable.
- Did not attend this day.
- Very moving and inspirational
- The wrap-up was good, but still can't compare with being in person.
- It all went so fast! I really liked how the conference was scheduled.
- Did not attend.

- Loved the virtual band ensemble!
- Love the song at the end. That has to take a lot of work to pull off!
- Enjoyed the virtual fireside chat.
- Again, absolutely loved the wrap-up music video!!!!

Other Comments or Suggestions

- Looking forward to seeing you all in person! Great job with this year's workshop!
- I thought the GoToMtg and GoTo Webinar worked really well, and I hope the conference will continue to include this as an option for attendees who cannot travel to be in-person in the coming years.
- Get rid of GoToWebinar.
- Thank you! Excited to attend in 2022!
- Thanks for a great conference!
- The on-line sessions have been great, but they are getting stale, especially when we are considering 4 days of half-day sessions. Getting out of town to have a meeting is refreshing. We can focus when we are in Shepherdstown. We are continually bombarded by our normal work activities while attending the virtual workshops, and therefore, may not be able to focus. We need to meet in person.
- Thank you!
- Thanks.
- This worked surprisingly well, but nothing beats meeting in Shepherdstown. Hope to be able to go back there sometime.
- Thanks again for all your hard work putting together this cybertown workshop. It is great to interact with others working on Section 303(d) programs, even if it is done virtually!
- It would be great to have a tribes-focused session about technical capacity building and bridging between 303(c) and 303(d). How can we stretch or blur the line between the two? What can tribes be doing that is in the 303(d) world before having TAS, or when deciding whether to apply for TAS? We talked about this a little in the two tribes-focused breakout sessions, but it would be great to hear actual examples and go more into detail. Has a tribe decided they do or don't want to go for 303(d) TAS and why or why not? What are the considerations?
- Also, I know there is a big push to have in-person trainings in the future. I have only been able to participate these last two years because the training has been virtual. We have such a small travel/training budget that sending staff to the East Coast for a week can be cost-prohibitive. I hope that there is a way to make future trainings hybrid - where most content is recorded or streamed live so that I can continue to attend remotely.
- Thanks again for the great training! Happy summer to everyone!
- Hopefully the remote option will still be available next year for those who cannot attend in person.
- Thank you all for your tremendous work! The workshop was great!
- I am hoping we can return to an in-person conference next year. Since fewer will be able to attend, perhaps some sessions could continue to be recorded and available for two weeks so those who cannot attend in person could still participate to some extent.

- Great job on another successful virtual conference. Really rich content and good food for thought.
- The logistics of this meeting were very challenging. I was unable to attend many sessions because calendar invites were very late going out, so my calendar was filled up with other meetings - the "hold" was not effective because the time blocks were not avail. Then the multiple emails to 1) indicate interest 2) then register 3) the add to calendars 4) then conf of registration 5) then reminder of the session 6) then thanks and survey - it was overwhelming and difficult to make sure correct emails were responded to. Virtual is hard, but there are lessons to be learned for future meetings (this or others).
- It would be nice if the recordings were made available for downloading or open to access for longer than 2 weeks.
- I was receiving so many notifications from GoToWebinar (such as 1 day before reminder, 1 hour before reminder, and thank you afterwards for each session), that by the last day, my email started noting the customercare@gotowebinar.com emails as potential spam. Hopefully, our email system won't retain that designation, in case we need to use GoToWebinar for something in the future.
- Overall everyone was well versed on the topic presented and did a really good job with the presentations and demos. The Q&A moderators did a great job with getting feedback on questions asked. Having the conference online these past 2 years has been nice and super helpful given that, in addition to working from home, many of us have had children at home. Also, having some of the sessions recorded for later review is quite helpful. Thank you all for another (and hopefully the last) great workshop in Cybertown.
- Great job to everyone who helped make this workshop happen!
- Overall the content of the breakout sessions was good. I think that a lot of the introductory material was overly scripted and felt stiff, whereas many of the later sessions allowed for better discussion and dissemination of material. Best large group talk was about Environmental Justice, that section had a great moderator and had excellent discussion from all panelists.
- Thanks for putting this together, I hope we can keep the virtual option alive in the future for the benefit of so many staff that would not normally be able to attend.
- Thank you for organizing this workshop! Very useful information was covered!
- Please continue to provide a virtual option next year for participants to attend without traveling. It has been a great opportunity for junior staff and staff that are less directly involved with 303(d) and TMDLs to attend.
- Hope to see you in person next year.
- I enjoyed the workshop. I'd like to see more technical detail on climate change application.
- Overall, I think this was improved from last year. Nothing can take place of the in-person, but this was well done! I like the options to switch up some of the sessions (although I did stick with what I was assigned and was happy with it). The recordings are a great option if you suffer from FOMO....I plan to go back and check some of those out.
- Special thanks to Jessie Sugarman who helped us work through preparing for our regional breakout session. ELI staff was great as always!
- As a Section Manager, it would be great to attend next year if the workshop is held in Shepherdstown, along with my TMDL Team Leader.

APPENDIX 3: TRAINING WORKSHOP WEB PORTAL & ELI'S *CWA 303(d) PROGRAM RESOURCE CENTER*

ELI continues to maintain and make publicly available a companion website for this training workshop and past training workshops. Materials and presentations from the 2021 training workshop are available at <http://www.eli.org/freshwater-ocean/cwa-303d-training-workshops>.

Other resources that are relevant to the mission and work of state and territorial CWA 303(d) programs and tribal water quality programs are available at the Institute's *CWA 303(d) Program Resource Center*, at <http://www.eli.org/freshwater-ocean/state-tmdl-program-resource-center>.