

**National EPA-Tribal Science Council (TSC)
Summer 2022 Face-to-Face Meeting**

Harrah's Cherokee
Eastern Band of Cherokee Indians
Cherokee, North Carolina

June 28–30, 2022

MEETING SUMMARY

Tuesday, June 28, 2022

Gathering, Roll Call, Welcome and Opening Morning Song

Neil Patterson Jr., TSC Tribal Co-Chair, Tuscarora Nation; Brenda Rashleigh, TSC Agency Co-Chair, Office of Research and Development (ORD), U.S. Environmental Protection Agency (EPA); Catcuce Tiger, Cherokee Language Instructor, Cherokee High School, Eastern Band of Cherokee Indians (EBCI); Joey Owle, Divisional Secretary of Agriculture and Natural Resources, EBCI; and Felicia Wright, Deputy Director, American Indian Environmental Office (AIEO), Office of International and Tribal Affairs (OITA), EPA

Neil Patterson Jr. and Brenda Rashleigh welcomed the TSC members and guests to the first face-to-face meeting since November 2019. They thanked Katie Tiger and EBCI for hosting the meeting and Monica Rodia and The Scientific Consulting Group Inc. for organizing. The theme of the meeting is traditional knowledge, around which the TSC will have thoughtful discussions. Traditional knowledge may be referred to as Indigenous knowledge, traditional ecological knowledge (TEK) or Indigenous traditional ecological knowledge (ITEK).

After Catcuce Tiger sang a traditional Cherokee morning song, Joey Owle welcomed the participants to the Cherokee ancestral homelands. EBCI has established new agreements with federal agencies for mutual benefit, including procuring the first electric school bus in North Carolina and Region 4. The tribe continues to move forward despite challenges. Areas of the country suffering drought are a reminder not to take natural resources for granted; water is an abundant and sacred resource for the Cherokee people. EBCI is blessed to be on its ancestral homelands; a small number of Cherokees fought forced removal to stay sovereign and stay Cherokee. It is encouraging for the White House to issue a [memorandum on the importance of TEK](#), and Joey is interested in hearing about how the TSC and tribes will work with federal agencies to ensure that tribal voices are heard.

Joey outlined several projects undertaken by the EBCI Department of Agriculture and Natural Resources, including updating the tribe's community-endorsed legacy environmental plan to include climate considerations through a Tribal Climate Resilience Program grant from the Bureau of Indian Affairs, participating in the United South and Eastern Tribes Inc.'s Tribal Climate Resilience Camp, and executing a 5-year agreement with North Carolina State University to develop a climate action plan. The department is examining TEK for forest management (e.g., prescription burns, forest-thinning treatments) and has incorporated tribal members' opinions, views and practices into action, which will allow the tribe to manage its ancestral homelands. The nearby Ela Dam blocks fish habitat, and Joey initiated the current dam removal effort through a telephone call in December 2021 and by February 2022, had developed a resolution to remove the dam. Funds from the Bipartisan Infrastructure Law, which represents a once-in-a-lifetime funding opportunity, can be used for this project. The removal project has faced obstacles, but Joey and the department are resilient and pushing on despite the challenges.

A short discussion followed Joey's remarks. Karen Hamernik asked whether nontribal individuals may purchase homes or run businesses on EBCI land. Joey responded that that EBCI is one of a few tribes that have possessory holdings (i.e., deeded land) held by EBCI enrolled citizens. Non-enrolled individuals cannot own land. Homes and land are multigenerational, often passed down through a family. Establishing a business is not without challenges, but non-enrolled individuals may lease land from enrolled citizens following approval from a tribal business council. Tribal acquisitions need to be approved by the EBCI Tribal Council. Of EBCI's 16,000 enrolled citizens, approximately 9,000 to 10,000 live on the boundary (EBCI's term for its reservation), which comprises 56,000 contiguous acres.

In response to a question from Eliodora Chamberlain about the Cherokee Central Schools, Joey explained that the tribe traded land with Great Smoky Mountains National Park to develop the school system as the best K–12 campus in North Carolina. EBCI funded a \$36 million upgrade to add seven elementary classrooms, an administration building, a traditional gathering place and other improvements. The \$150 million campus is Silver LEED certified, contains an impervious lot to capture water that then supplies the campus toilets, includes safety features in case of an active-shooter emergency, and hosts regional school sporting and arts events. Currently, 500 elementary, 270 middle school and 300 high school students are enrolled in the school system, which empowers children to learn the Cherokee language. Graduates are offered scholarships to attend college debt-free and return to the boundary to help improve the tribal community. EBCI also funds hospitals, community centers and assisted-living centers.

Following this discussion, Felicia Wright gave her remarks, noting that the TSC was an early promoter of the importance of TEK and climate change, making them tribal science priorities more than a decade ago, and now these topics are a critical part of EPA's programs.

Felicia explained that AIEO is focused on improving the management of the Indian General Assistance Program (GAP), strengthening consultation and recognition of tribal treaty rights, working across EPA to recognize and respect the importance of Indigenous knowledge, and engaging proactively with other federal agencies. AIEO plays a lead role in managing GAP, which allocates approximately \$65 million annually to more than 530 tribes and intertribal consortia to administer environmental protection programs. AIEO recently proposed changes to the GAP guidance and allocation formulation, reflecting considerable input from tribal governments. EPA has tried to be transparent during the process and identify flexibilities so that all tribes have the opportunity to address their environmental priorities. During tribal engagement, AIEO consistently heard about the importance of GAP funding and the need for more and steadier funding; the proposed changes are responsive to these requests. The draft 2022 GAP guidance provides greater clarity and flexibility in allowable activities and grant administration. The tribal consultation period on the proposed changes closes on August 2.

Another priority area for AIEO is strengthening EPA's consultation and tribal treaty rights recognition in response to the White House memorandum promoting meaningful tribal consultation. AIEO is reviewing EPA's consultation policies and procedures in response to this memorandum and to a 2021 memorandum of understanding regarding the protection of tribal treaty and reserved rights (TTR MOU). AIEO hopes to announce potential revisions to EPA consultation policies and procedures by the end of 2022.

Another AIEO priority is working with EPA's program and regional offices in the recognition of and respect for Indigenous knowledge. EPA recognizes the importance of Indigenous knowledge. As such, AIEO is working with the White House Interagency Working Group on ITEK. EPA encourages staff to work with Indigenous knowledge respectfully and effectively. EPA staff have much to learn in this area and are committed to working with Indigenous knowledge in a way that is mutually beneficial to tribes and EPA. EPA was involved in drafting the *Guidance on Indigenous Traditional Ecological Knowledge for Federal Agencies*, which will be released for public comment soon.

Finally, EPA is working to implement the TTR MOU by considering treaty and reserved rights in climate adaptation implementation plans, so that climate actions by EPA consider tribal treaty rights and mutually support climate change and TEK priorities. EPA is on the cusp of making noteworthy changes, particularly in collaboration with EPA-Tribal Partnership Groups.

EBCI Natural and Cultural Resources Session

Restoring the Sicklefin Redhorse to Cherokee Waters

Mike LaVoie, Natural Resources Manager, EBCI

Mike LaVoie displayed a historic map titled, *Cherokee “Nation of” Indians*, showing the former territorial limits of tribal lands, which comprised hundreds of thousands of square miles within seven current states. Water is a critical part of the Cherokee identity and affects food, arts, ceremony, language, aesthetics, myth and lore, medicine, recreation, and economy. Cherokee water lore describes the “Long Man” (*Gunahita Asgaya* or ᄅᄇ ᄅᄇᄅᄅ), which represents the ancestral rivers. Colonization and forced removal caused a loss of connection with these rivers and other ancestral resources, with resulting implications for how the tribe currently maintains these resources and its livelihood. Threats to EBCI’s water resources are varied and include economic pressures, anthropogenic threats, and habitat loss and fragmentation.

EBCI works in the framework of a modern tribal government and established its Department of Agriculture and Natural Resources in 2015. The department conserves, protects and enhances the natural resources for the benefit of the Cherokee community. EBCI manages its natural resources through TEK and the best-available science, performing valuable work that is informed by the community.

North America is home to 75 native sucker species, which require a free-flowing river and are an indicator of good habitat quality, despite their negative reputation. Suckers and Cherokee fish weirs are an integral part of Cherokee survival and identity. The sicklefin redhorse, a sucker known as *ugidatli* (“wears a feather”), was found in only two drainages in North Carolina in the 1990s. The species received attention in the late 1990s because the species was “found” by Western science in 1992. The species now can be found throughout the watershed in North Carolina, Tennessee and Georgia.

The Ela Dam has had a dramatic effect on fish access within Cherokee waters, and in 2007, the state approached the tribe regarding how to restore the sicklefin redhorse because of its cultural and subsistence value to the Cherokee. The tribe began to collect brood stock and gametes and initiated restorative stocking above the dam annually, which has continued for the past 15 years. The sicklefin redhorse was a candidate for the Endangered Species List, and then-Vice Chief Richard Sneed signed a multi-agency Candidate Conservation Agreement in 2016 to save the species. As a result of these partnership conservation efforts, the U.S. Fish and Wildlife Service found that listing the sicklefin redhorse as an endangered or threatened species was not warranted. Cherokee population assessments and monitoring have not seen as many reproductive adults as desired, but the tribe is focused on the long term and examining genetic diversity, which may take 20 to 30 years to come to fruition. EBCI is working with partners and using new tools, such as environmental DNA analysis through water sampling, in boundary and off-boundary waters to assess and ensure the fish’s presence in the original drainages. EBCI is tracking the population to determine whether it is staying above the Ela Dam.

Protecting Cherokee water resources is critical, and the tribe has implemented federally approved water quality standards, surface water monitoring through the tribe’s state-certified laboratory, biomonitoring of macroinvertebrates and fish, regulatory compliance efforts, and instream restoration. Ela Dam is an impediment to full restoration, and its removal will be an incredible linchpin for restoring the species.

To maintain Cherokee ecological and cultural connections, the tribe has enacted a number of programs, including traditional fish weir reenactment. The Cherokee Kids in the Creek Program introduces tribal children to stream snorkeling and teaches them about fish resources. Cherokee children also are introduced to their ancestral resources through Cherokee language curriculum development and instruction on preparing and cooking the sicklefin redhorse.

Wenona Wilson asked whether the current knowledge holders or elders have advice for the restoration project. Mike responded that the department is engaging elders to hear their stories and increase grassroots advocacy about the Ela Dam removal project. It will be a long educational process.

Karen asked whether the department is concerned that the dam removal will be a source of pollution. Mike noted that the sediment release that occurred in 2021 was a significant source of pollution, and feasibility assessments are being performed to address potential sediment contamination as a result of removal. Another dam removal project in the upper headwaters has been fully funded to restore 3,000 linear feet of stream.

Shasta Gaughen asked whether the tribe has treatment-as-a-state status, and Mike responded in the affirmative. Shasta commented that Klamath River tribes in Oregon and California have had difficulty in removing the Klamath Dam to restore habitat. Mike responded that the Ela Dam once was connected to the power grid, but it no longer is. The dam removal has become politicized, however, which has made the project challenging. Shasta noted that the Yurok Tribe passed a resolution that provides the Klamath River with rights, and she suggested this option for EBCI. Mike thanked her for the timely suggestion, reiterating the Cherokee rivers' identity as Long Man.

Brenda asked what makes ideal spawning habitat. Mike responded that the fish need free-flowing waters and lay their eggs in pools. The Ela Dam is an impediment to the spawning habitat.

Reintroducing Rivercane as a Keystone Species

David Anderson, Horticulture Operations Supervisor, EBCI, and Adam Griffith, Director, Revitalization of Traditional Cherokee Artisan Resources (RTCAR)

David Anderson explained that the EBCI Horticulture Office plays a natural resources enhancement role and is “putting culture back into agriculture.” The office produces plant material for tribal projects, cultural and artisan resources, and revenue generation and also offers a wide variety of other services, such as educational outreach, seed banking and pollinator habitat restoration. The office conducted an informal community survey about species of interest and discovered that wild strawberries are an important cultural resource for the tribe. The office grows plant species of cultural interest and does not charge enrolled tribal members for these plants. EBCI has established government-to-government relationships to provide federal access to traditional lands to gather seeds for the purposes of restoration. An important effort is rivercane mapping, monitoring, sampling and propagating, as well as learning the traditional science of rivercane.

“Sustainable,” “regenerative” and “permaculture” have become horticultural buzz words, but these have been the Cherokee way of production from time immemorial. The Cherokee people integrated native plants and production agriculture as one to maintain a balanced ecology. Western science must acknowledge that it may not be able to provide this type of traditional knowledge.

Adam Griffith explained that rivercane is one of three bamboo species native to the United States and is one of the most culturally important plants for southeastern tribes. Rivercane traditionally was used for houses, food and sleeping mats, and blow guns. Some families still have rivercane utility objects that have been passed down for generations. He noted that the mission of RTCAR is to teach, protect and promote Cherokee traditional art, resources and land care for present and future generations. RTCAR primarily

works through grants and has given 136 grants totaling \$2.3 million to nonprofit organizations. EBCI members must benefit from work performed under the grants. RTCAR's three strategic goals are to ensure that ample resources are available for Cherokee artisans, traditional knowledge is preserved and used, and culturally significant plants are preserved.

In terms of species restoration, it is important to ask, "Restoration from what to what?" and consider whether a species should be restored to pre-contact levels. In the example of rivercane, 98 percent of that species has been eradicated from the landscape, so any restoration is beneficial. Adam highlighted a January 2019 Warren Wilson College stream restoration project that allowed EBCI to transplant rivercane from the project site. The state does not consider rivercane restoration a priority, which has been a barrier. Another challenge is rivercane's infrequent reproduction cycle; the species is sporadic and gregarious, meaning that the plant seeds and then dies. Adam closed by noting that he would like EBCI to make natural resource decisions that consider traditional artisans.

Karen asked whether cameras could be installed to help identify the seeding and flowering cycle. Adam thought that this could be a good strategy, especially because the seeds are viable for only a few weeks. Shasta added that perhaps a citizen science opportunity exists to identify when the plants flower and seed. Also, her tribe has begun to integrate natural resources and cultural resources, finding funding opportunities that allow the Pala Environmental Department and Tribal Historic Preservation Office to work together.

Billy Bunch asked about rivercane's wetland indicator status, noting that tribes performing wetland restoration may qualify for additional grants. A Region 8 tribe working on sweetgrass restoration qualified for such a grant. Adam responded that rivercane prefers well-drained, sandy soils.

Mike asked why more restoration activities are not being undertaken if 98 percent of the rivercane has been decimated. Adam responded that historically, rivercane has been considered a nuisance plant by European farmers. Also, rivercane still is found in its historic locations—just in decreased amounts—so people see it everywhere and do not perceive it as threatened. Rivercane no longer reaches its historic height and diameter, so it does not support the wildlife that it used to. To reach the historic size, long periods with no disturbance are needed.

Caucus Sessions

The Tribal and EPA Caucuses met separately to discuss individual Caucus business.

Tribal Knowledge, Research Protocols and Data Sovereignty Session

Tribal Knowledge, Research Protocols and Data Sovereignty: A Suggested Framework for the Co-Production of Knowledge

Caleb Hickman, Supervisory Fisheries and Wildlife Biologist, EBCI

Caleb Hickman explained that the upcoming *Tribal Wildlife Management Book*, which has been developed to describe contemporary wildlife issues in Indian country and educate wildlife professionals and students, contains a chapter focusing on how researchers and tribal citizens can work together productively and respectfully. The purpose of the book is to establish a modern tribal perspective rather than historical footnotes.

Caleb noted that researchers seek to work with tribes because of tribally held knowledge, tribes' deep connection with natural resources, and their sovereign rights. Ethical and equitable co-produced research must be enacted to ensure that all stakeholders have a meaningful voice. Tribal lands can serve as natural laboratories and also share borders with nontribal lands. Tribes historically have had jurisdiction over vast

areas of land, and even today they are stewards of large amounts of land. TEK and traditional habitat management practices are based on connections to these lands.

Forced removal caused a loss of connection with ancestral lands and resulted in the loss of culture. For the Cherokee people specifically, 90 percent of tribal members were removed from their homelands, more than one-third of them died during removal, and Cherokee land cessions have resulted in the loss of 99 percent of Cherokee ancestral lands. Although EBCI manages a relatively small area, this area is very biodiverse, and ancient Cherokee TEK (“Never drink water from a [river] branch unless it rolls over five rocks and a lizard’s back.”) and traditional management practices (e.g., permaculture, prescribed burning) still apply. Unfortunately, because of the loss of connection, however, fewer species have names from the Cherokee language, fewer stories are told, fewer medicines are found, and fewer ceremonies are held.

Tribal mistrust of Western researchers has many origins (e.g., conquistadors’ treatment of Indigenous peoples, forced sterilization, controversy surrounding Kennewick Man), and settler colonial science can be invasive, extractive and paternalistic. Tribes may participate in research but not have access to results. To overcome these shortfalls, researchers must make the work useful and available, as well as stay in contact with the tribe and build solid relationships based on trust. Settler colonial scientific processes can be neutralized through co-production of knowledge, which differs from collaboration. Co-production combines multiple knowledge sources from different stakeholders—based on respect and equal partnership—with the goal of informing environmental understanding and decision-making. Caleb highlighted a white-tailed deer project and the sicklefin redhorse restoration project that Mike described as examples of co-production.

Tribes could consider a permitting approval process for working with researchers. Tribes may work with outside researchers to connect with external expertise, obtain management information and technology to maintain their sovereignty, allow their voices to be heard, preserve their information, and promote jobs and professional development. Outside research, however, should not interfere with a tribe’s mission or conflict with other research, and the research should be considered valuable by the tribe. Also, the tribe must own the data from any co-produced research. Non-Indigenous researchers must realize that collaborations require significant time and should not be tokenized. Co-production is the best way to increase knowledge in a respectful manner.

Changing the Paradigm: Strengthening Our Ability to Include ITEK in Federal Decision-Making
Wenona Wilson, Senior Tribal Policy Advisor, Region 10, EPA

Wenona told personal stories about TEK and what it means to her, her family and her tribe. She explained that the White House Interagency Working Group on ITEK uses the term “Indigenous traditional ecological knowledge,” which also can be referred to as Native science. She noted that it is critical to build relationships and understand perspective and intent when discussing ITEK. In the Native worldview, natural resources cannot be decoupled from culture, spirituality, mental health or existence; everything is connected, and this connectivity maintains balance. TEK is the oldest, most-practiced, sacred knowledge, passed from generation to generation. Like DNA, Indigenous knowledge lives within tribal individuals. TEK has many definitions, and no single definition is superior. TEK is both tangible and intangible, and in some Native cultures, it is never to be shared with outsiders. Federal agencies will struggle with the intangible aspects, and statutes currently do not support the notion that inclusion of TEK is a covenant and responsibility for tribes when exercising stewardship over their lands.

Before any work on TEK can begin with federal agencies, the federal government and any guidance it releases must acknowledge that past federal policies were an attack on Indigenous knowledge (e.g., American Indian boarding schools). Also, it is necessary for the federal government to protect TEK to the best of its ability, but without the presence of specific statutes, Indigenous knowledge cannot be

protected from Freedom of Information Act requests. Additional statutes that protect TEK must be enacted.

To ensure that TEK is used respectfully, Region 10 has developed seven TEK Working Principles, which apply to all Indigenous people, including Native Hawaiians, inhabitants of U.S. protectorate islands and nonfederally recognized tribes. These principles represent “promising” practices rather than best practices and are as follow: (1) TEK may positively benefit an EPA-proposed decision, program or action. (2) EPA staff must be prepared to work with Indigenous information appropriately and transparently. (3) All tribes are sovereign and unique, and every tribe will approach the subject of sharing TEK differently. (4) Whether or not a tribe chooses to share TEK with EPA is the decision of the individual tribe. (5) Honest and open communication about how TEK can inform a decision and EPA’s limitations in protecting TEK is critical. (6) If tribes differ on what TEK should be shared with EPA, the most conservative approach should be sought. (7) EPA is committed to revisiting this guidance over time as it learns from its tribal partners.

The recent White House memorandum recognizes the importance of TEK and commits federal agencies to elevating TEK’s role in federal scientific and policy processes. Federal guidance on TEK includes how to implement promising practices for collaboration, how to address federal government challenges around ITEK, and how to respect knowledge holders’ rights. The federal guidance will incorporate tribal input and complement existing guidance to elevate ITEK in federal decision-making. Wenona recommends that EPA staff plan ahead, build relationships with tribes, allow tribes to determine what—if anything—will be shared, and follow up with tribes to continue the relationship. The federal effort must recognize historical trauma, understand that TEK is a Western term and cannot be captured in a data point, strengthen the legal platform for TEK, and support direct TEK implementation. Indigenous knowledge stands on its own, but federal agencies must consider how to use it when regulations are contrary to its use, how to cite Indigenous knowledge, and how to ensure that decisions made using this knowledge are legally defensible.

Discussion

TSC members discussed who “owns” TEK—the individual, family or tribe. This ownership affects how EPA may proceed in some situations (e.g., emergency response). Tribes have different views on ownership, and some tribes do not believe in ownership of TEK at all. Tribes often have varying degrees of responsibility for holding knowledge. In terms of Principle 6, tribes should not be put in a position of affecting what other tribes share. Once EPA is provided with TEK, it becomes public in the sense that EPA will be compelled to share it if requested. Although TEK may be derived from or owned by a specific family, when being shared with federal agencies, the government-to-government relationship with the tribe is invoked, and TEK is shared at a tribal level. Those who hold the knowledge know what to share and what not to share.

In terms of emergency response, tribes are invited to participate in the command structure of the response, but it can be difficult for EPA to use TEK without crossing lines that are not readily apparent. EPA could be proactive in working with tribes before an event happens so that protocols already are in place. The National Historic Preservation Act statutorily protects cultural knowledge on all ancestral lands, not just trust lands; a similar statute to protect TEK would help solve this issue. Those entities working on cleanup only need to know that a tribe has a plan and trust the tribe’s knowledge. Superfund staff must build ongoing relationships with tribal communities and build a foundation to understand their knowledge. Ultimately, federal agencies must be able to protect TEK, and current statutes may need to be changed to ensure this protection.

Tribes would like resources to develop their own research and data-sharing policies instead of relying on those of federal agencies. It is important for tribes to have the support and time to develop these policies

and establish institutional review boards so that they are self-reliant in protecting their own knowledge. Shasta is working with Region 9 tribes to identify common themes in existing protocols to help other tribes develop their own. Unfunded mandates for tribes to participate in tribal consultation hurt tribes. In addition to federal consultation, tribes are requested to participate in state, county and city consultations, which often stretches them to or beyond their capacity. This in turn affects their capacity to work on additional tasks, such as developing research protocols. Funding support to participate in tribal consultation and develop research protocols would be highly beneficial. Currently, tribes often are forced to adapt settler colonial science, which is not always compatible with tribes' preferences. Tribes have had to adapt to the settler language and should be supported in using their own language. Speaking one another's language is important.

Western science does not have a right to know everything that a tribe knows; however, helping tribes protect their natural resources is difficult when EPA lacks knowledge. For example, EPA's Water Quality Data Portal allows tribes to share and analyze data, which helps them increase their understanding of the data so that they can document beneficial actions to protect their water quality and aquatic resources. EPA Region 5 is trying to be more supportive and understanding of tribal knowledge and documenting ownership. For example, academia publishes data, whereas tribes do not. Participatory science could be an avenue for tribes to share any knowledge that they wish.

EPA has requested tribal knowledge for risk assessments, but may not receive the information because of a lack of trust. In some cases, a trusted third party has collected tribal knowledge but is not allowed to share it with EPA. Risk assessment is dependent on tribes being fully cooperative, and EPA does not have the final determination of what information it is able to obtain. Tribal knowledge of medicinal herbs used in the development of pharmaceuticals cannot be protected from release because of the patent requirement. For example, Gaia Herbs in the Blue Ridge Mountains is researching medicinal plants, and EBCI is concerned about pharmaceutical companies appropriating their natural and cultural resources.

Not all tribal knowledge is sacred and must be protected. For example, some tribes do not protect the fact that they use cattails for basket weaving. Some knowledge, however, is sacred, and tribes should not be compelled to provide this information. For example, a California regional water quality control board in the Central Valley is requiring tribes to describe every aspect of their water uses, including those that are sacred, to prove their water usage; this requirement is unacceptable.

TEK is a way of life and comes from action, not discussion. TEK is completely participatory. GAP funds allow tribes to plan and develop but not implement and take action, which is counterintuitive. GAP is structured in a manner that is anathema to tribal ways of thinking. Canada has instituted a policy to take action to incorporate TEK; EPA could consult with Environment and Climate Change Canada for recommendations. Neil's tribe is affected by the artificial line that denotes the U.S.–Canada border and consults with Canada as a result.

Neil thanked the Cherokee for grounding the participants in place and recessed the meeting at 5:00 p.m.

Wednesday, June 29, 2022

Day 2 Welcome Session

Richard Sneed, Principal Chief, EBCI; Chris Frey, Assistant Administrator for Research and Development, ORD, EPA; and John Blevins, Director, Laboratory Services and Applied Sciences Division, Region 4, EPA

Richard Sneed noted that traditional knowledge is an issue of the heart. Value systems include the heart and mind, and humans have developed divisive labels, but the fundamental truth is that we are all human beings, and all humans have experienced trauma in one form or another. Unjust acts happen as a normal

course of life, but how individuals respond as human beings is the important factor. Individuals have a choice to be bitter or better. Humans have more in common than they have differences. Healing will not occur by obsessing about past trauma, and current generations cannot be blamed for events that happened hundreds of years ago. Individuals must not succumb to victim mentality.

At the time of forced removal, 1,100 Cherokee individuals resisted, and their strength and tenacity formed the foundation for EBCI today. Today's greatest challenge for tribal leaders is understanding, without blaming, the past to be able to understand and address current difficulties. Colonization imposed a dependency model for more than 500 sovereign nations with complex political and religious systems. Colonizers failed at assimilation but succeeded in implementing a dependency model of government, partly because tribal members with the historical knowledge of tribal government were gone and unable to advise differently. This dependency has pervaded the entire United States, and it is important to move people from an entitlement mindset to an empowered mindset: *This* is the challenge.

To be tribal is to be interdependent. Every act that tribal members used to do for each other now is covered by a tribal program, which undermines what it means to be tribal. Citizens of sovereign nations have responsibilities and must return to the old value system of being interdependent with one another. There is no dignity in dependency, and the poverty mindset must change. Instead of envy causing individuals to bring each other down, people must learn to lift each other up. The answers are ancient, and the old saying holds true: If it is new, it is not true, and if it is true, it is not new. The Cherokee people have endured for thousands of years because they maintained their core value system and did not discard their ways and traditions for each new thing. The Cherokee guiding principle is to treat each other's existence as sacred and important. Thinking this way changes how one views the world and others and allows individuals to live in harmony with all of creation.

Chris Frey thanked EBCI for the opportunity to visit the Cherokee ancestral homelands, noting the resilience of the Cherokee people. He also shared personal anecdotes to highlight the core values that Richard mentioned, as well as illustrate that local knowledge is centered in place and can build a sense of community. He commented on the need to tell important stories and build relationships. His oceanographer father and artist/writer mother taught him to observe and respect nature, which fostered his passion for protecting the environment. He is interested in the translation of science to inform decisions. ORD is the science arm of EPA and conducts applied research that provides the foundation for decision-making. ORD supports other EPA offices and regions by undertaking science issues, including place-based issues identified by the regions.

ORD conducts its research through six national research programs: Air, Climate and Energy; Chemical Safety for Sustainability; Health and Environmental Risk Assessment; Homeland Security; Safe and Sustainable Water Resources; and Sustainable and Healthy Communities. Since Chris entered his current role in ORD in 2021, the six national research programs have been planning their next set of Strategic Research Action Plans (StRAPs). The programs sought tribal input to help develop these plans. ORD recognized the importance of engaging tribes early and following the early tribal engagement process, implemented formal consultation to obtain comments about the draft StRAPs. Working with partners is important, and tribes are partners of EPA with a nation-to-nation relationship. EPA Administrator Michael Regan is a strong advocate of this nation-to-nation relationship. Even if it is not always recognized, all humans share similar values. Chris agreed that interdependency and respect are fundamental values. Respect of Indigenous knowledge is key, and Chris is eager to understand what tribes are willing to share.

John Blevins stated that Region 4 respects tribes in the region as partners and equals. Region 4 staff have many things to learn about tribes, as well as many things that they can offer to tribes. John shared a personal story highlighting why he loves this area of North Carolina. He previously worked in Region 6,

and the tribes located in Oklahoma and New Mexico operate very differently than Region 4 tribes, which take a checkerboard approach to management. He agreed that interdependency is critical, and Region 4 would like to be interdependent with tribes in the region. Tribes have a long-standing love of and different relationship with the land, and Region 4 staff are eager to learn about this relationship to be able to provide assistance and products that help tribes meet their ecological and cultural goals. Tribal knowledge and EPA knowledge should complement each other for mutual benefit and the benefit of the environment.

Each EPA region has a science division, and although they operate differently, each has relationships with ORD laboratories to be able to assist clients in their regions even when the region does not have a specific capability. This highlights the concept of interdependency, which is a higher state than being independent. John highlighted Region 4's capabilities: performing field sampling, providing two-way field sampling training, scuba, performing quality assurance, developing Quality Assurance Project Plans (QAPPs), collecting data, developing standard operating procedures, setting up monitoring networks, performing analysis through the region's certified laboratory, assisting with field quality assurance protocols, correctly siting air monitors, educating the next generation about the environmental world through mobile units, and responding to hurricanes. John encouraged tribes to allow Region 4 to provide assistance as an equal partner.

Tribal Knowledge Working Session

The document developed by the White House Interagency Working Group on ITEK, which will be available for public comment soon, touches on many of the items discussed at this meeting. The goal is to finalize the guidance before the end of the year.

The TSC's [2011 TEK white paper](#) served as a primer to educate the general public and EPA on the importance of TEK to tribes; no one was talking about TEK then, and now even the White House agrees that TEK is important. The TSC can develop a new white paper that serves as a guide for federal agencies by identifying promising practices and suggesting ways to incorporate TEK in federal decision-making (i.e., move from aspirational to operational and implementable). The 2011 TEK white paper still is valid and can serve as a foundation for the next white paper.

Many factors (values) need to be present for a human to be whole (e.g., laughter, hope, peace). For example, the Haudenosaunee Great Law of Peace recognizes this, and EPA's Human Health and Well-Being Index also touches on some of these values. These values historically have not been used in risk assessments or environmental decision-making, and this area has not been explored to the extent necessary. It is important to understand the current values that guide environmental decision-making and ensure that the plethora of core cultural principles valued by tribal members are included. Tribal members do not just want to survive; they want to thrive. EPA should support how a tribe is using its Indigenous knowledge to make its own decisions based on the community's values (i.e., EPA must support tribes that say, "We are going to take this action based on our knowledge and values."). Dominique David-Chavez and the U.S. Indigenous Data Sovereignty Network could serve as resources for this effort.

EPA's Safe and Healthy Communities Research Program has learned that it is necessary to incorporate values identified by tribal communities rather than use a risk number. The first step is to identify what values are important to a community and then operate on the ground based on the community's top priorities. The goal is to determine how to apply important values to meet the needs of specific tribes. The White House memorandum does not mention values, but it does mention beliefs. The TSC's role may be to translate how ITEK and these important cultural values can be applied to federal decision-making.

An integral part of TEK is its origin in cosmology and as a guide on how to treat each other; TEK is not just environmental observations. TEK is born from belief systems. Knowledge systems must have parity. EPA's cooperation is needed so that tribes can put forth their knowledge systems for use in environmental

decision-making. Language and words matter when incorporating TEK; implementing TEK using the English language is a challenge.

Building trust is important, and researchers must be physically present in the community as much as possible and remain in the community after the research is finished (i.e., researchers must not “parachute”). Trust will not be built through Zoom or email. Researchers must be genuine because tribal people need to see “heart.” Scientists are not trained to show heart, so this may be challenging. Tribes must be equal partners, and knowledge must be co-produced. Tribes do not care what scientists know until they know that they care. Researchers also must be careful not to appropriate methods that tribes have always known about and performed (e.g., cultural burning) as they become more mainstream and accepted (i.e., “Columbusing”).

TEK considerations are a part of environmental justice. Private industry pollutes and affects tribal lands. EPA must consider how to work on environmental justice issues and incorporate TEK while also working with private entities. Federal agencies must understand the Marshall trilogy, tribal sovereignty and the rights that sovereignty provides (e.g., tribal civics lessons).

EPA staff cautioned that specific requests are needed to obtain funding, so any requests should be tied to specific needs. EPA must make decisions based on statutory authority with prescribed protocols; this will be a challenge to implementation of TEK in the decision-making process. Also, it is important not to delay this effort by waiting for the right language to be developed. EPA must continue moving forward educating staff about TEK, and tribes must move forward incorporating TEK while they wait for the language to catch up.

The analogy of the ship and canoe traveling side-by-side in the river is an important one to remember for this effort. Western science and tribes have their unique approaches, but they should travel next to each other in the river.

It is difficult to discuss tribal issues on the national scale, so the TSC’s role may need to be at a smaller scale. For example, the TSC could work with those reviewing work plans so that the right people can be in the right place at the right time.

EPA’s cultural shift must be internal, and tribes should not bear the burden of educating EPA staff. When tribes are forced to educate non-Indigenous people, they are put in the position of telling traumatic stories repeatedly. The stories need to be told, but this hardship should not constantly be inflicted on tribal members. Instead, EPA staff can identify examples of TEK being successfully incorporated into decision-making and use this as a foundation to ignite the paradigm shift. EPA could consider how to incentivize staff to embrace the paradigm shift. Without incentives, personnel are returning to the old paradigm following any TEK education and training they may undertake.

Finally, the Tribal ecoAmbassadors program could be helpful in this effort.

EBCI Natural and Cultural Resources Tour

TSC members and meeting participants toured the EBCI boundary in the tribe’s electric school bus, the first one in North Carolina and Region 4. Participants were shown the Cherokee Central Schools campus and Cherokee Indian Hospital, visited Kituwah (Cherokee Mother Town), viewed traditional rivercane in its habitat, visited the Ela Dam that the tribe will be removing to restore native fish habitat, learned traditional Cherokee social dancing at the Museum of the Cherokee Indian, and viewed crafts by Cherokee artisans using traditional resources.

The meeting was recessed at 5:00 p.m. following the tour.

Thursday, June 30, 2022

Caucus Sessions

The Tribal and EPA Caucuses met separately to discuss individual Caucus business.

PFAS Session

PFAS Injustice in Indian Country

Page Hingst, TSC Tribal Vice Chair, Santee Sioux Nation

Page Hingst explained that 140 confirmed PFAS sites are located within a 5-mile radius of tribal lands, and an additional 2,815 sites have suspected PFAS contamination. Nineteen percent of tribes are located within 6 miles of at least one PFAS source, and 80 percent are located within 10 miles of at least one PFAS source. PFAS was discovered accidentally in 1938 by DuPont, and it was incorporated into a variety of products (e.g., Teflon) beginning in the 1940s. Beginning in the 1950s, PFAS was used in nearly every industry until the 2000s, when PFAS contamination became widespread, and industries started phasing out these chemicals. Research is being conducted on the effects of PFAS contamination, and lawsuits and settlements against PFAS manufacturers (e.g., DuPont, The 3M Company [3M]) are abundant. DuPont found evidence of PFAS liver toxicity in animals and toxicity in humans in the 1960s, and 3M found PFAS compounds in workers' blood in the 1970s. 3M also found evidence that PFAS compounds cause rare birth defects and removed all woman workers from the Teflon unit in the 1980s with no formal explanation.

The Centers for Disease Control and Prevention estimates that 97 percent of individuals have some level of PFAS in their bodies. These individuals are at risk for a variety of health effects, including obesity, increased cholesterol levels, suppressed response to vaccines, certain cancers, decreased fertility, kidney disease and diabetes.

Tribes often carry significant burdens in terms of environmental pollution, and PFAS contamination is no exception. This contamination affects tribal economies, subsistence food, cultural and traditional practices, and water and sanitation systems. Water is sacred to many tribes, and protecting water is critical. Approximately 4.7 million tribal members rely on unregulated water sources, which are not tested or monitored for PFAS. Most reservations have unlined landfills, which are known sources of PFAS contamination. Tribal people have long experienced lower health status than other Americans, with high rates of lead poisoning, anemia, diabetes, kidney disease, liver disease and certain cancers. PFAS substances in the blood can exacerbate these conditions. Tribes also are more vulnerable to pollution because of their reliance on their environments for cultural practices, subsistence foods and overall livelihoods. Page highlighted a conceptual model of direct and indirect exposures to tribal individuals.

As sovereign nations, tribal governments are responsible for generating revenue for their communities, and PFAS contamination can have a detrimental effect if revenue is lost as a result of the contamination. Rural tribes often are identified as among the most disadvantaged communities, and rural tribes are more likely to be disadvantaged and have higher levels of environmental pollution and health disparities. Food security and sovereignty are extremely important to tribes, and PFAS contamination can jeopardize subsistence foods and agricultural crops. Finally, PFAS research and testing on tribal lands are profoundly lacking.

To address PFAS contamination on their lands, tribes need more funding for infrastructure for access to clean and safe drinking water. Adequate sanitation systems are needed to prevent PFAS from leaching. Tribes did not cause most of the contamination on their lands, but they are responsible for cleanup without adequate funding; PFAS manufacturers should be responsible instead. More tribal PFAS research

and testing must be conducted so that tribes are aware of the extent of contamination. Outreach materials need to be developed so that tribes can inform their citizens about PFAS risks and exposure routes. A great deal of work is needed to ensure the health and protection of tribal members and the environments in which they live.

Tim Canfield asked why tribal members are underrepresented in PFAS research and testing. Page responded that research has been performed in the general population, and tribal populations are not representative of the general population. Also, some tribes do not want PFAS testing because they are unable to act on the information. Aaryn Jones added that PFAS monitoring under the previous Unregulated Contaminant Monitoring Rule (UCMR) applied only to drinking water systems serving 10,000 or more individuals. The new UCMR will apply to drinking water systems serving 3,300 or more individuals, so more tribal systems will be captured.

Tim asked whether testing limitations were related to lack of capacity to collect samples or lack of analytical capabilities to process samples. Aaryn replied that testing depends on funding amounts. Tim wondered whether citizen science could be leveraged for testing. Aaryn explained that PFAS sample collection and testing are complex processes. Hunter Johnson added that PFAS samples can be contaminated easily and require special collection bottles. PFAS testing complexities are beyond current citizen science capabilities.

Karen asked how to best perform remediation. Page responded that small landfills could be remediated depending on how deeply contaminated they are and how much leaching has occurred. Water systems can be remediated, but doing so is costly. John concurred, noting that plant uptake and aerial deposition of PFAS are of significant concern. Page agreed and explained that plant uptake and re-deposition of PFAS is a vicious cycle.

Shasta asked whether Page has specific recommendations for EPA to assist tribes in addressing PFAS contamination. Page replied that EPA could provide laboratory services for tribes that need them.

Neil commented that detection of PFAS in the environment leads to a “rabbit hole.” PFAS compounds need to be made illegal, and tribes need to return to their traditional methods of cooking using sustainably sourced local materials to reduce potential contamination from Teflon. The focus should be on allowing tribes to return to their traditional methods rather than on detection and the diminishing returns on PFAS detection limits when remediation actions cannot be taken.

Page noted that she will be providing a “PFAS 101” presentation, including information on developing QAPPs, at the upcoming Tribal Lands and Environment Forum.

EPA’s PFAS Strategic Roadmap: EPA’s Commitments to Action 2021–2024

Aaryn Jones, Emerging Contaminants Coordinator, Region 4, EPA

Aaryn explained that not all EPA regions have an Emerging Contaminants Coordinator, but each region has a PFAS Coordinator, as well as a Tribal Coordinator. Aaryn has been coordinating with Region 4’s Tribal Coordinator to ensure that tribes receive information on EPA’s PFAS actions. EPA’s approach to PFAS contamination forms the foundation of the [*PFAS Strategic Roadmap: EPA’s Commitments to Action 2021–2024*](#) (PFAS Strategic Roadmap or Roadmap). Aaryn displayed a life-cycle diagram showing how PFAS can be used and enter the environment, some of which are unique to these compounds. EPA’s approach takes this uniqueness into account and considers the PFAS life cycle, gets upstream of the problem, holds polluters accountable, ensures science-based decision-making, and prioritizes protection of disadvantaged communities.

The three goals of the PFAS Strategic Roadmap are (1) research, (2) restrict and (3) remediate. Multiple EPA program offices are responsible for cross-program actions within the Roadmap, including engaging directly with affected communities, using enforcement tools to identify and address PFAS releases, communicating PFAS risks, and coordinating with federal partners. Additionally, ORD advances research and development to improve the scientific understanding of PFAS. The Office of Chemical Safety and Pollution Prevention is responsible for conducting work under the Toxic Substances Control Act (TSCA) and ensuring chemical safety. The Office of Land and Emergency Management is responsible for cleaning up PFAS contamination. The Office of Air and Radiation implements the Clean Air Act and addresses PFAS air emissions. The Office of Water protects water resources and oversees EPA actions under the Safe Drinking Water and Clean Water Acts.

Since releasing the Roadmap in October 2021, EPA has taken a number of key actions to restrict PFAS through TSCA and the Toxics Release Inventory Program, deepen understanding of PFAS categories through the National PFAS Testing Strategy, reduce the presence of PFAS in products purchased by the federal government, develop regulations to designate PFAS compounds as hazardous substances under Superfund, and evaluate and develop technologies for reducing PFAS in the environment.

EPA also has taken actions to protect water. Under the Safe Drinking Water Act, EPA is taking a groundbreaking step to set enforceable limits for PFOA and PFOS in drinking water and also is improving drinking water data through monitoring, toxicity assessments and health advisories (HAs). Under the Clean Water Act, EPA is working to develop discharge limits for industries that use PFAS through Effluent Limitations Guidelines. EPA also is working to address PFAS in Clean Water Act permitting, analytical methods, water quality criteria and fish advisories. Finally, EPA is working to evaluate the risks of PFAS in biosolids.

A drinking water HA level (or value) is the concentration of a drinking water contaminant for a specific exposure duration at or below which exposure is not anticipated to lead to adverse human health effects. A lifetime HA protects all Americans, including sensitive populations, from adverse health effects resulting from exposure throughout their lives. EPA is releasing HAs for four PFAS compounds, including interim HAs for PFOA (0.004 parts per trillion [ppt]) and PFOS (0.02 ppt), which are based on publicly available EPA drafts undergoing EPA Science Advisory Board review, and final HAs for perfluorobutanesulfonic acid (2,000 ppt) and GenX chemicals (10 ppt), which are based on publicly available, peer-reviewed final toxicity assessments published in 2021.

The Bipartisan Infrastructure Law provides \$10 billion to invest in communities affected by PFAS and other emerging contaminants, including \$4 billion through the Drinking Water State Revolving Fund, \$1 billion through the Clean Water State Revolving Fund, and \$5 billion through drinking water grants to small and disadvantaged communities.

John asked Aaryn to elaborate on the recent dramatic increase in the number of PFAS compounds. Aaryn explained that 3M voluntarily terminated PFOA and PFOS production based on the concerns about the compounds' effects, and other companies followed. These companies, however, began to develop replacement compounds, resulting the development of GenX chemicals, which potentially could number as many as 12,000. Under TSCA, EPA is aware of 1,300 GenX compounds that can be used commercially. EPA is examining compounds that have been approved for use and ensuring that any additional non-approved uses are not harmful. All newly submitted PFAS compounds are deeply scrutinized.

Karen asked whether EPA has recommendations for individuals who would like to discard their Teflon products. Aaryn responded that regular household waste contributes to PFAS presence in landfills, and EPA does not have any specific recommendations for disposing of Teflon products or PFAS testing materials. The current recommendation is to hold on to the products and not dispose of them in landfills.

Tim asked whether the ppt value is environmentally relevant in terms of exposure risk and what its purpose is if it is below current detection limits. Aaryn responded that the numbers were derived from epidemiological studies and are relevant because they are based on the most recent science. Practical limits will be considered in developing the final drinking water HAs. John added that EPA wanted to be transparent throughout the HA process.

Jackie McCasland asked about typical sample sizes for a larger water system. Hunter responded that sample sizes will depend on the site and whether testing is quantitative or qualitative. One sample bottle may be accompanied by four or five quality control samples. John added that effluent can be tested, which can determine whether additional testing is needed in the distribution line.

Caucus Report-Outs

Neil shared two pieces of recent news related to TEK. First, the Secretary of the Interior announced that Native American and Native Hawaiian knowledge qualifies as expert knowledge for tribal cultural preservation in the National Register of Historic Places. Second, the state of New York and the federal government are returning more than 1,000 acres of ancestral land to the Onondaga Nation to support the use of TEK to manage the land. This is the largest return of land to a tribe by any state. These news items represent the current momentum of TEK.

The Tribal Caucus also discussed ideas on how to disseminate information about TEK: workshops, a website, social media presence, outreach materials (e.g., brochures), collaborations with other tribal groups and the National Tribal Operations Committee, and an EPA-sponsored national environmental managers meeting to discuss TEK and other tribal environmental issues. The Tribal Representatives noted that various terms for TEK will receive pushback. Until individuals live these concepts, they will not understand them. Non-Indigenous individuals do not need to understand TEK; they just need to accept that it is important and meaningful to tribes.

The Tribal Caucus encouraged EPA to adopt a biocultural approach to remediation in addition to the current biophysical approach. Also, if EPA is able to advocate for the establishment of a Native Science Foundation that supports tribal proposals using TEK, such a foundation would be a great step forward in allowing tribes to use their TEK to manage their lands. The Tribal ecoAmbassadors Program can be leveraged to support the next generation of tribal environmental professionals in using TEK.

Neil concluded by noting that action and implementation are critical. The time for discussion is over, and now is the time to take action to allow tribes to implement their TEK in the stewardship of their lands.

David Charters cautioned against using the term “restoration.” EPA performs cleanup and risk reduction, whereas restoration is a court negotiation between trustees and the responsible parties.

Shasta emphasized that the Tribal Caucus would like to have an increased social media presence guided by the Tribal Representatives rather than EPA.

Brenda reported that the EPA Caucus discussed actions that the TSC could take to advance the TEK effort, including following up with EPA and OITA to align the TSC’s efforts with ongoing training and determine the inventory of training available across the EPA regions. The EPA Representatives also would like to understand the regional communication structures so that information about TEK can be disseminated effectively. The TSC can collaborate with EPA and ORD on how to support the co-production of research.

David added that it would be helpful for a tribally owned contractor to provide TEK training to EPA staff. The Tribal Caucus could identify such a contractor (i.e., an entity that can be contracted and not paid

through a grant), as well as discuss the content of the training and what the Tribal Representatives think is appropriate for this effort. Jackie noted that April Heathcote may know of such a contractor and offered to contact her.

Closing and Adjournment

Next steps will be discussed at the TSC's next monthly meeting. Monica thanked Katie and EBCI for their hard work in hosting the meeting, Dana Adkins for representing Region 3 for the first time at a TSC face-to-face meeting and for his work with the National Tribal Caucus, and Jackie for her enthusiastic participation on the Agenda Development Team immediately following her appointment to the TSC. The TSC Winter 2022 Face-to-Face Meeting will be held the week of December 5 at one of EPA's facilities in North Carolina, which will offer the Tribal Representatives an opportunity to better understand how EPA's laboratories and centers operate.

The Co-Chairs adjourned the meeting at 1:00 p.m. following a Cherokee song sung by the Tiger family.

**National EPA-Tribal Science Council (TSC)
Summer 2022 Face-to-Face Meeting
Participants**

Neil Patterson Jr.

TSC Tribal Co-Chair
Tuscarora Nation (Region 2)

Page Hingst

TSC Tribal Vice Chair
Santee Sioux Nation of Nebraska (Region 7)

Brenda Rashleigh

TSC Agency Co-Chair
U.S. Environmental Protection Agency
Office of Research and Development

Dana Adkins

TSC Member
Chickahominy Indian Tribe (Region 3)

David Anderson

Eastern Band of Cherokee Indians

John Blevins

U.S. Environmental Protection Agency
Region 4

Michael Bolt

Eastern Band of Cherokee Indians

Billy Bunch

TSC Member
U.S. Environmental Protection Agency
Region 8

Clell Carnes

Eastern Band of Cherokee Indians

Tim Canfield

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Eliodora Chamberlain

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Region 7

David Charters

TSC Member
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Office of Land and Emergency Management

Kacee Deener

U.S. Environmental Protection Agency
Office of Research and Development
Office of Science Advisor, Policy and Engagement

Chris Frey

U.S. Environmental Protection Agency
Office of Research and Development

Shasta Gaughen

TSC Member
Pala Band of Mission Indians (Region 9)

Adam Griffith

Revitalization of Traditional Cherokee Artisan
Resources

Karen Hamernik

TSC Member
U.S. Environmental Protection Agency
Office of Chemical Safety and Pollution
Prevention

Caleb Hickman

Eastern Band of Cherokee Indians

Hunter Johnson

U.S. Environmental Protection Agency
Region 4

Aaryn Jones

U.S. Environmental Protection Agency
Region 4

Desirae Kissell

Eastern Band of Cherokee Indians

Mike LaVoie

Eastern Band of Cherokee Indians

Janette Marsh

TSC Member
U.S. Environmental Protection Agency
Region 5

Jackie McCasland

TSC Member
Delaware Nation (Region 6)

Joey Owle

Eastern Band of Cherokee Indians

Sean Paul

U.S. Environmental Protection Agency
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Breanna Sneed

Eastern Band of Cherokee Indians

Richard Sneed

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Kai Tang

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Dawn Taylor

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Catcuce Tiger

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Katie Tiger

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Scott Walz

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