Environmental Education and Outreach: Priming the Next Generation

Over the last several issues we’ve explored ITEP’s air-quality-related program components. In the final segment in this series, we take a look ITEP’s Environmental Education and Outreach Program (EEOP).

The Environmental Education and Outreach Program’s Project Coordinator, Mansel Nelson, has been with ITEP for 20 years. But don’t count on finding him at ITEP’s Flagstaff office on any particular day. More likely he’ll be on the road, visiting tribal classrooms to work with students and teachers on environmental challenges facing their communities, pursuing his over-riding goal to encourage student interest to consider careers in the ecological/environmental sciences.

“That’s the goal,” says Mansel of his EPA-supported mandate. “The way I do it, and what I’m most interested in, is helping students understand how this thing we call ‘science’ works in their communities—how their water gets prepared and delivered to their home, how wastewater is treated, how uranium mines down the road might be affecting their communities, how radon might be affecting their lungs or cleaning practices might trigger asthma. My job is outreach and recruiting [into science-based careers], but the way I do it is by engaging people on issues that directly impact their communities, issues they can learn about and do something about to improve their quality of life for themselves and their family.”

Mansel is often working under several grants, including from EPA, NASA, the National Science Foundation and others. Regardless of his source of support, his primary focus consistently reflects his philosophy that ‘all science is local.’ That means he tailors his training and other support to the needs of those he’s visiting. “If I’m in a chemistry classroom in Kayenta on the Navajo Nation,” he says, offering an example, “I know they’re dealing with uranium-mining issues, so we might talk about the chemistry side of uranium. If it’s a biology class, I’ll focus on how uranium affects the human body. It’s always about what’s going on in the community.”

Extended drought is an ongoing issue throughout the Southwest, where Mansel spends most of his time, and he often addresses water-related issues, whether related to the movement of sand dunes on the Navajo Nation, local water-delivery systems, or any of a variety of other topics. The quality of the air in tribal schools, homes and offices is a common issue he addresses, with the ultimate goals of helping individuals improve their local environments while also encouraging them to consider science-based careers.

“When we talk about the environment,” he says, “people think a lot of different things.”

see EEOP on page 5
Greetings. I hope you kept warm this holiday season in company with family and friends and found time to relax as we move into 2018.

A couple of updates: ITEP’s air program continues apace with training courses, outreach and education, and technical support through ITEP’s Tribal Air Monitoring Support Center (TAMS) in Las Vegas. Pat Ellsworth, ITEP’s Air Curriculum Coordinator, reports that a new course is being added in January 2018 titled “Air Quality Planning for Wildland Smoke.” This much-needed training, which follows a “Smoke-Ready Communities” seminar presented at last year’s National Tribal Forum on Air Quality, will include five webinars (open to anyone) followed by two days of classroom instruction for tribal participants. As EPA tightens its budget, such “hybrid courses” are one way ITEP is working to control training costs while enabling tribal air professionals to continue receiving quality instruction on air-related topics.

Chris Lee, TAMS Co-Director, notes that the tribal TREX system, a network of near-real-time ambient air monitor data reporting by as many as 22 tribes, recently was notified of the withdrawal of its operating grant for 2018. Quick work by the TAMS staff resulted in consultation among EPA, ITEP and Sutron (the network operator) that helped garner temporary funding for the program into 2019. Thanks, Chris and team! Our thanks also go out to EPA for their flexibility in providing ongoing support for the TREX system.

Next, ITEP’s Environmental Education Outreach Program (EEOP) staff are also engaged in an exciting new program, working with five schools on Navajo Nation to pilot a new air quality monitoring program in partnership with AQTreks (www.aqtreks.com/about). Teachers and students at the schools will learn about air quality and use a Personal Air Monitor (PAM) to collect air quality data. They will be able to measure Carbon dioxide, Carbon monoxide, PM, Relative Humidity and Temperature. The PAM links to a smartphone to download data, using the phone’s GPS to geo-reference the data. Students will learn more about the air they breathe by monitoring their school grounds and sharing their data with other students via the web.

I am happy to announce that ITEP was awarded a grant to administer the National Tribal Water Council (NTWC). I am honored to work with this Council, as I once served on it years ago. Our initial work with the NTWC in December included assisting the Council in drafting comments for the EPA’s rulemaking of the Waters of the US (WOTUS). ITEP will continue to support the NTWC in the coming year with a new website full of information to assist all the tribes, so please stay tuned.

I want to offer my thanks to two ITEP team members who have recently moved on to other opportunities. John Mead,
The Northern Cheyenne Clean Air Act: Sovereignty and Evolving Authority

The Northern Cheyenne Tribe in southeastern Montana took a giant step in air quality sovereignty last December with their passage of the Northern Cheyenne Clean Air Act. Still a work-in-progress, the NCCAA initially addresses ambient-air pollution and open burning.

Having resolved to more-assertively claim tribal authority over air quality on the 445,000-acre reservation, home to 5000 tribal residents, the tribe decided in early 2016 to launch the NCCAA project. The drafting effort was spearheaded by Northern Cheyenne’s Air Quality Administrator, Jay Littlewolf, with support from Air Quality Tech, Scott Williams, and tribal attorneys. They also drew on input from regional tribes who provided ideas on how to structure the Act. When considering the levels the Act would mandate on National Ambient Air Quality Standards, they chose to tie them to existing federal levels. “If we wanted them to be more strict,” he explains, “we would have had to hire scientists, labs, etc, which would be very costly.”

The Northern Cheyenne Tribe was the first governmental agency to establish Class 1 status, on August 5, 1977, two days before national parks and wilderness areas were mandated to Class 1 air status. The tribe maintains one of the longest-running air programs in Indian country, supported by three Sec. 103 grants, a Sec. 105 grant and a contract with a major coal-fired power company. Northern Cheyenne’s two-person air department manages a multi-faceted air-quality regimen, conducting PM\textsubscript{10} particulate monitoring, the results of which are provided quarterly to EPA’s Air Quality System; visibility monitoring through EPA’s IMPROVE program; meteorological and wet-deposition mercury monitoring; and indoor air quality work with tribal residents.

Littlewolf hopes to eventually include IAQ regulations in the NCCAA to address incinerator and home woodstove burning. “A lot of tribal members,” he says, “burn trash in their woodstoves. That can be a problem when the burning includes things like batteries and lightbulbs.”

The tribe’s Class 1 air-quality status limits visibility-degrading pollutants such as sulfur dioxide and mandates strict controls on industrial development that might threaten the pristine nature of the Class 1 airshed. That isn’t the case with most of the surrounding region, and fugitive emissions also periodically invade their airshed from outside tribal boundaries. Northern Cheyenne communities experience pollution stemming mainly from seasonal forest burning both in and outside the reservation, and from particulates arising from traffic as well as the reservation’s unpaved roads (the main reservation town, Lame Deer, is in nonattainment for PM\textsubscript{10}). Four power plants outside its borders at times contribute to the pollution load; two of those plants are scheduled for shutdown in June of 2022.

Open Burning

The Bureau of Indian Affairs Forestry Division burns slash on Northern Cheyenne land from fall through spring, mainly to thin forests to suppress wildfires. Residents also conduct limited agricultural burning and burn trash and yard waste both inside and outside of their homes.

Littlewolf describes the evolving nature of Northern Cheyenne’s authority over open burning: “We have a burn permit system in the NCCAA,” Littlewolf says, “and our staff can sign off on permits. But BIA wants to be involved, because we don’t yet have full capacity. They want the burn permits signed off by both them and us. We need to work with them on this right now, but hopefully within a few years we can get our capacity up, learn about ceiling heights and things like that, the technical aspects. We issue the permits. But for now, when someone wants to burn, we send BIA out. Even with BIA’s own slash burning in spring through fall, if there’s a violation, they have to sign off on it! So we need to get to the point where we can do the enforcement.”

Ambient Air Quality Enforcement

A relatively minor ambient-air pollution issue the tribe has faced since the NCCAA was promulgated has helped to clarify the challenges they face in utilizing the Act to its full potential. "In 2017, a contractor for the Montana Dept. of Transportation," Littlewolf explains, “had a contractor here in Lame Deer building a roundabout. [The air department] wasn’t aware of the project..."
Upcoming ITEP-AIAQTP Courses for FY18

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<tr>
<th>Course</th>
<th>Dates</th>
<th>Location</th>
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<tbody>
<tr>
<td>IAQ Diagnostic Tools</td>
<td>Feb. 6–9</td>
<td>TAMS, Las Vegas, NV</td>
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<td>Air Quality Computations</td>
<td>Feb. 27–Mar. 2</td>
<td>Phoenix, AZ</td>
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<td>Air Pollution Technology</td>
<td>Mar. 13–16</td>
<td>Flagstaff, AZ</td>
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<td>AQ Planning for Wildland Smoke</td>
<td>Mar. 27–28</td>
<td>Boise, ID</td>
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<td>GIS for Air Quality</td>
<td>Apr. 17–19</td>
<td>TAMS, Las Vegas, NV</td>
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<tr>
<td>Air Quality in Alaska</td>
<td>Apr. 17–20</td>
<td>Barrow, AK</td>
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The course schedule can change. For updates, visit: http://www7.nau.edu/itep/main/Training/training_air

Save the Date!

2018 National Tribal Forum on Air Quality

May 14-17, 2018
Duluth, Minnesota

The NTAA provides environmental professionals from tribes, EPA, and other organizations an opportunity to meet and discuss current policies, regulatory initiatives, technical and other relevant topics in air quality & climate change.

Important!

- Optional Training Sessions on Monday 5/14
- $75 registration fee – online registration opens in January
- Scholarship support for tribal attendees
- Sponsorship opportunities available!

For updates, check www.nau.edu/ntfaq

U.S. EPA Tribal Air Contacts

To contact U.S. EPA’s Tribal Air support staff, visit the web at: https://www.epa.gov/tribal-air

ITEP on the Web

From our home page you’ll find links to ITEP programs, info on upcoming events, training and support opportunities, and newsletters to keep you informed on our work in a variety of media. Visit us at: www.nau.edu/itep
Things, but they don’t typically think about where they live and work. A big piece of the environment is our schools, homes and offices—and in some ways those are our most neglected environments. So I encourage students to expand their definition of ‘environment’ to include their surroundings, and increase their awareness that those places need to be healthy, too.”

Much of Mansel’s EEOP-related roaming spans the Southwest U.S. “I don’t have lots of money for travel, airline tickets and such, and the needs are great right here.” He does, however, sometimes leverage his travel to accomplish more than one purpose. For example, when he’s visiting a tribal community to instruct for ITEP’s core courses such as Indoor Air Quality in Tribal Communities, he might take another day to visit a local school to instruct on issues pertinent to them. During his visit to a tribal conference in Mississippi last year he did just that and worked with both students and teachers. “The nice thing about that trip,” he says, “is that the teacher and kids took information from a school air quality assessment to the school board on issues they wanted corrected, and they were successful. They got some maintenance done on some of the issues.” Likewise, on a recent journey to Albuquerque, NM, to instruct for an ITEP air-quality course, he took time to work with a local school on their air-quality issues.

EEOP’s reach extends beyond Mansel’s work, with the help of the program’s 11 student workers, who assist with “Saturday Academy” on the Northern AZ University campus, help with NAU’s Native American recruitment activities, and staff other events locally and regionally. Julaire Scott coordinates many of the staff projects, prepares events and performs other tasks. In addition to Shonri Begay’s work as the program’s Administrative Assistant, she coordinates an asthma-education project, instructing on healthy cleaning practices that help minimize asthma attacks. An EEOP intern, Darrien Benally, is involved in a NASA-sponsored archeo-astronomy project. Other staffers perform outreach to Native schools and coordinate a radon-education project on the Hopi and Navajo Nations. In all, Mansel says, EEOP’s dedicated team is often engaged in a dozen or more activities at any one time.

Internships

The interns who work directly with EEOP on regional projects are part of a larger internship program that provides college students with opportunities to take part in real-world environmental work at host sites around the nation. Yearly Summer Internships place students for eight (or more) weeks at various sites—tribal environmental programs, EPA offices, state, nonprofit and educational facilities—where they apply their talents and academic skills to assist on a wide range of host-site projects, from fish toxin sampling to air monitoring to indigenous land recovery.

The advantages are reciprocal. “The host site gets an eager student who can do a lot of work, is highly motivated, and often brings valuable skills and a different perspective on the issues,” Mansel says. “And occasionally they get an employee.” Interns get the chance to participate in professional activities, learning important skills such as time management and public speaking as well as a variety of technical skills, all of which can enhance their professionalism and render them more attractive to future employers. (See the last several issues of Native Voices to learn more about intern activities and how ITEP student internships can benefit both participants and hosts).

A few examples of successful former interns: Chris Lee, ITEP-TAMS Co-Director; Jonathan Nez, Navajo Nation Vice President; and Johna Boulafentis, who has worked for a decade as a variety of technical skills, all of which can enhance their professionalism and render them more attractive to future employers. (See the last several issues of Native Voices for a profile of Johna’s internship and employment at Nez Perce).

Internships can also be short-term, often tailored specifically for a particular intern as well as the needs of the host site. “Short internships” tend to be more flexible in terms of activities than the eight-week summer placements and can be arranged more quickly, but they also provide hosts with enthusiastic workers seeking to hone their professional skills.

In addition, says Mansel, many of the short internships are structured to provide networking opportunities, an often-crucial link that helps move interns from academia to professional life.
MENTORING

Less formal but also important for student professional growth, the EEOP team’s mentoring provides students with encouragement and direction as they ponder their career directions. Mansel says, “It starts in middle school, with us talking to kids about their plans, both educational and professional. For example, an event in late November helped kids who are getting ready to graduate from high school, a time when some are wondering what they want to do for the rest of their lives.

“A lot of mentoring occurs, I think, when it’s not apparent that it’s happening. I talked to one young lady working on a recent event who remembered being on a project with me 15 years ago. We were out surveying bats then, and I wasn’t even in charge. But she remembered our conversation about her future plans, when I encouraged her to think about college. So she gave me partial credit for the fact that she’s completed her college education and is now employed by NAU to recruit future students.”

Mansel says there’s no good way to quantify the impact EEOP has on students over the years. But he notes, “There are a whole lot of Native scientists and engineers all across the nation, and many are graduates of NAU. I feel like we might have had a tiny bit of influence on their success.”

Host Sites Needed for 2018 Student Internship Program

Each year ITEP-EEOP sponsors student interns at environmentally oriented host sites around the country. Hosts sites provide interns with valuable real-world experience; in return, interns bring their enthusiasm, new ideas, and hard work to aid the organization’s efforts.

The deadline for 2018 host site applications is Jan. 19th.

For general and contact information on ITEP’s Student Internship Program, visit:

www7.nau.edu/itep/main/eeop/Internships/

Participants in ITEP’s Fundamentals of Air Monitoring course, held Dec. 4–6, 2017, at the TAMS Center in Las Vegas, Nevada.
NCCAA – from page 3

until it was underway; I had to start working on it in the fall of 2016. They tore out everything, and we’re worried about air and water quality. Since we monitor 24 hours a day, we were seeing issues — there were PM10 24-hour exceedances. I told them they need to water the site around the clock, because the intersection is open around the clock.”

He says there was some reluctance on the part of the contractor to do so, though they did eventually present a plan of action to address construction-related air issues — although now [in winter 2017 at the time of this interview], the dust load from the project has diminished considerably, and the project is likely to be wrapped up by late spring of 2018.

Clarifying this and future enforcement efforts remains a challenge with the new Act. “We thought we could do enforcement on the PM standards. We had a meeting with [EPA] attorneys from Region 8 in November and told them we have this Clean Air Act and asked if we could enforce it. Recently they’re saying we need a Tribal Implementation Plan or a State Implementation Plan — but this is temporary construction, and though it’s been going on a long time, it would take too long to do something like that. So we don’t think we can do anything as a tribe to enforce the standards, and EPA doesn’t really seem to want to deal with this; I guess it’s not their thing.”

The agency advised him, he says, that “since you have the NCCAA, you probably have more jurisdictional power.” Littlewolf says, “We already have enforcement power, but it hasn’t really been challenged yet.” He believes that to give the statute adequate teeth, at least until Northern Cheyenne builds up its enforcement capacity, the tribe may need federal backup on issues that involve enforcement actions such as fines and other sanctions.

Littlewolf notes that EPA staff has been cut dramatically and that they may have difficulties with staffing such efforts. But he’s concerned that until the tribe develops sufficient enforcement capacity, the Act might not be taken seriously by those they attempt to regulate. “So, we have a Northern Cheyenne Clean Air Act now, but it’s a matter of figuring how to do the enforcement. We do have a Quality Assurance Project Plan — once that’s approved your data is legally defensible in court. We just have to be really on the ball, make sure our data is solid.”

He points out that the tribe’s two-person air staff is limited in the activities they can undertake. “We’re not enforcement officers, and we don’t want to be. We could be out writing tickets and things like that — it’s written into the NCCAA. But we could get beaten up, shot, whatever. Same is true of meth chemicals. I do IAQ, but EPA doesn’t really seem to want to mess with meth. I’m concerned that this is an illegal drug, sometimes there are cartels involved, and if we do something, they might do something....”

The Northern Cheyenne Clean Air Act is, as Littlewolf points out, a work-in-progress. He notes that the tribe is proceeding with great care as they work through the details and challenges inherent in their development of this landmark tribal effort, because what they do with the Northern Cheyenne Clean Air Act, and how it evolves legally, might set precedents that would affect other tribes wishing to develop similar legislation.

Littlewolf is confident that eventually they will develop the capacity to enforce the Act with minimal federal assistance. He also says the tribe will add more parameters to the Act over time, including regulations on indoor air, incinerator burning and air toxics, along with “other issues we might not even know about yet.”

The NCCAA gives the tribe inherent authority to manage air quality within its borders, but to give it more heft, they are presently seeking federal approval for the Act. “Once it’s approved on the federal level with the TIP and the TAS, then we probably would ask EPA to put something in writing, saying that they will be there to back us up on enforcement issues. Meanwhile, at least the tribe has authority now; it’s just a matter of building our capacity.”