



EEOP Newsletter

Environmental Education Outreach Program (EEOP)
Volume 1, Issue 2 (November 2005)

Web version @
<http://www.nau.edu/eeop/newsletter>

The Newsletter

This newsletter is a service of the Institute for Tribal Environmental Professionals (ITEP) Environmental Education Outreach Program (EEOP). We've created this newsletter specifically for K-16 students and educators that are interested to learn more about environmental issues with a focus on air quality. There will also be information and articles directed towards tribal environmental professionals. We will be creating and disseminating nine issues a year. This is our second issue, so it's important to us that we hear from you, our readers, how we can improve and enhance this publication. To begin with, we would appreciate your feedback on a title for this newsletter:

We still need a title for the newsletter. Students are encouraged to submit their ideas to Mansel A. Nelson at mansel.nelson@nau.edu. Please provide your suggested title and any explanation that you think is necessary. A committee of ITEP staff will review the suggestions and select a title. The person that submits the winning title will receive a \$30 gift card. If more than one person submits the same title, the first one to send the email will receive the award.

Internships

The EEOP staff is actively recruiting students (both high school and college students) and mentors for the ITEP internship program. We have nearly 40 opportunities for interns this year. We have A 1-week internship is available for high school students or college students. We have 10-week internships available for college students. We also have 1-week education and outreach internships available for tribal professionals. If you are interested in an internship or in hosting an intern, please visit the EEOP web-site at <http://www.nau.edu/eeop> or contact us at matthew.zierenberg@nau.edu or 928-523-8864. Although you can submit your application on-line, we still encourage you to check your spelling and grammar before submitting the application.

Education and Outreach Training Course for Air Quality Professionals

The Environmental Education Outreach Program (EEOP) staff is revising the Education and Outreach training course. The updated course will be offered at Haskell University in January 2006. The course will be offered again at Northern Arizona University in May 2006. The course will be delivered in a Problem Based Learning (PBL) format, which encourages increased participant involvement. The course will help participants prepare to conduct education and outreach in their respective communities.

Participants learn about guidelines for environmental education and outreach programs that have been developed by the National Project for Excellence in Environmental Education, initiated by the North American Association for Environmental Education (NAAEE) in 1993. Environmental education is a process that aims to develop an environmentally literate citizenry that can compete in our global economy; has the skills, knowledge, and inclinations to make well-informed choices; and exercises the rights and responsibilities of members of a community.

Participants also learn about Alaska “Standards for Culturally Responsive Schools”. Although the standards are written for Alaska natives they are very helpful for other native communities. The standards have been developed by educators to provide a way for schools and communities to examine the extent to which they are attending to the educational and cultural well being of the students in their care. These "cultural standards" are predicated on the belief that a firm grounding in the heritage language and culture indigenous to a particular place is a fundamental prerequisite for the development of culturally-healthy students.

For additional details and to obtain a registration form for the course you can visit the EEOP website at <http://www.nau.edu/eeop> (follow the link to “Current Workshops”).

Campus Visit Program Report

During the months of October and November the EEOP staff has been busy planning and carrying out a new Campus Visit Program. The staff has had a wonderful time introducing students from around the region to science, math, engineering, technology and the environment through hands-on, inquiry-based activities. Each session has taken place on the Northern Arizona University Campus which has allowed the students to meet university faculty and staff. Students also have the opportunity to explore a university campus, which helps them prepare for their future post-secondary education.

One of the most exciting sessions this fall was the Shonto Preparatory High School Microbiology Lab experience. The EEOP staff and the Microbiology Department at NAU partnered to offer this unique opportunity for high school student to gain experience using a state of the art university microbiology lab. During this experience students worked with NAU faculty members Dr. Maribeth Watwood and Dr. Egbert Schwartz, to extract and isolated salmon DNA and used high powered microscopes to view the microorganisms that help reclaim wastewater.

In addition to the time spent in the lab, the students and sponsors also toured the Rio De Flag water reclamation plant. When asked about what activity they liked best, one Shonto high school student commented “We got to look at real DNA, and I got to see what bacteria and dirt look like through a microscope. It was awesome!!” Another student commented that, “The water treatment plant was smelly and gross, but then again really cool!” Activities like these foster excitement and inquiry in learning. The students came expecting to attend a lecture, but they left, excited and motivated about the things they had just experienced.

Topics for the Campus Visit program have ranged from studying watersheds in order to identify possible water quality issues brought about by air pollution, to taking a closer look at indoor air quality issues brought about by decaying radioactive isotopes. Each topic is chosen because it is a relevant, important community issue. The EEOP staff also conducts complementary outreach visits to the schools, working with students and teachers at their respective schools.

For more information about this program please visit www.nau.edu/eeop or to schedule an event contact Matthew Zierenberg at matthew.zierenberg@nau.edu, 928-523-8864.

Air Quality – A Historical Perspective

Air Quality has been an issue for centuries. An early air quality law was established in 1306 by King Edward I. The king outlawed the use of coal in London because it was creating health problems. The penalties in this early air quality law were a little more severe than what the EPA can impose today. King Edward I, outlawed coal burning exclaiming, "... whosoever shall be found guilty of burning coal shall suffer the loss of his head."

The city of London, located in England, has a long history of air quality problems. During the late 19th century London experienced several severe episodes of smog that resulted in many smog-related deaths. Although the air quality improved during the first half of the 20th century, there was another episode of smog, now referred to as the "Great London Smog" that occurred in 1952. The smog lasted for five days and resulted in over 4000 deaths. In response to this tragedy, the British government passed its first Clean Air Act in 1956.

The United States experienced a major bad air quality episode in 1948. Pollution releases from several industries in Donora, Pennsylvania, were trapped by a temperature inversion. Over a period of three days 6,000 illnesses and 20 deaths were attributed to the bad air quality. During this same time period Los Angeles began experiencing severe smog episodes.

After local communities and states created various laws to address air pollution, the first Federal Air Quality legislation in the United States was passed in 1955. Called the "Air Pollution Control Act", this legislation increased awareness of air quality issues and prompted research. There were several congressional actions leading to the Clean Air Act of 1970, which established demanding standards for air quality. For the next 20 years there were a series of amendments leading up to a major overhaul of the Clean Air Act in 1990.

There continue to be debates about how to achieve good air quality. Industry often fights air quality standards, because it costs money to achieve those standards. Consumers also resist higher costs resulting from pollution control devices. During the transition to unleaded gasoline for example, consumers would disconnect their catalytic converter because it was cheaper to purchase leaded gasoline. However, one of the major air quality improvements over the past 30 years was achieved by eliminating leaded gasoline.

We all contribute to air pollution. Much of the energy used in the United States is produced with fossil fuels, which can release various air pollutants. Every time you use electrical power, drive your car, or use goods that required energy to produce, you contribute to air pollution. Since we are all part of the problem, we can also be part of the solution.

This is part one of a series on air quality. Next month we will look at indoor air quality. For more information on air quality visit our website at <http://www.nau.edu/eeop/>.

Air Quality Web-Quest

Want to learn more about air quality? You are invited to participate in an EEOP web-quest on the history of air quality. If you are interested, visit the EEOP website to participate – <http://www.nau.edu/eeop/aqwebquest/>.

EEOP Staff Spotlight

In the staff spotlight for this issue is Mansel A. Nelson. He has been the Senior Program Coordinator for the EEOP program since August 1998. He enjoys working with tribal environmental professionals, educators and students to create significant educational experiences and learning opportunities. Mansel wants to improve the educational experience for all students. He believes it is important to connect the education experience to the real world and real issues.

Prior to accepting the coordinator position at ITEP, Mansel completed 14 years as a chemical officer in the US Army. Mansel completed tours as a chemist at Dugway Proving Ground and a chemical engineer at the Army Chemical Research Center, among several other military assignments. Following his military service he taught Chemistry at Tuba City High School, Navajo Nation. His focus as a classroom teacher was to help students understand how to apply science to the issues in their own community. He used Problem Based Learning (PBL) and Community Based Education as strategies for getting the students more involved in their own learning.

Mansel is married to AprilKay and has four adult children. His oldest son, David, is a computer scientist; his daughter, Eliza, is an electrical engineer; his son, Jacob, is an educator; and the youngest son, Jo-Pete, is an engineer in training.

Credits and Contacts

The US Environmental Protection Agency (USEPA) Office of Air and Radiation provides part of the funding to make this newsletter possible. Contact us with your ideas for future issues of the newsletter at mansel.nelson@nau.edu.

The newsletter will be disseminated on various list serves. If you get this newsletter indirectly and would like to join the newsletter list serve, contact mansel.nelson@nau.edu.

Our staff looks forward to providing new services and developing new programs, as well as continuing existing programs. We especially look forward to hearing from you. So please visit our website at <http://www.nau.edu/eeop> or contact us via telephone or email.

Mansel A. Nelson
928 523 1275
mansel.nelson@nau.edu

Matthew Zierenberg
928 523 8864
matthew.zierenberg@nau.edu

Christine DeCarlo
928 523 1496
christine.decarlo@nau.edu