TONES FROM THE TOOTH

The oil spill disaster in the Gulf of Mexico has illuminated several important points relative to Environmental Science that are important for us to recognize and consider. It is extremely unfortunate but the horrific conditions that are being developed as a result of this oil spill are presenting to the American public in very graphic terms the importance of Environmental Science. It is clear that it is critical to have competent people working in Environmental Science that have the capacity to assess a situation like this, develop a functional remediation approach, and realistically project the impacts on the environment in both the short and long-term.

Secondly, the oil spill demonstrates a case where the technology that is being employed to secure the resources or systems necessary to support the American standard of living is extremely complex. In this case the technological systems are so complex that reasonable or feasible methods of response or recovery were not even planned or designed, not to mention ready for implementation in the event of a system failure.

Thirdly, it is interesting to witness the response of many people in our country to this environmental catastrophe. Several public media surveys have shown that the American public is generally very well informed on this situation and they are quite incensed by the dreadful nature of this mess and the negative impacts on the environment. Yet at the same time, these same surveys have shown that the majority of the people are more concerned about the potential impacts from this event on gasoline prices and their own lifestyles.

These are just a few of the basic realities that we are forced to balance in terms dealing with environmental and resource management, economic priorities, and the role of Environmental Science in our society. As bad as this situation might be in the Gulf of Mexico, it does offer some important lessons for those of us working in Environmental Science to review and consider.

Jeffrey C. Silvertooth, Department Head

FEATURED VISITING SCHOLAR

Fernando A. Solís-Domínguez
I am a Postdoctoral Visiting Scholar (Research Associate) in the SWES Department working in Raina Maier’s Environmental Microbiology Lab. I came to the U of A in October 2007. I completed my undergraduate and graduate education in Mexico where I earned my BS from the Universidad Autonoma de Chiapas in Biotechnology, my MS from the Colegio de Postgraduados en Ciencias Agrícolas in Edaphology (Soil Microbiology) and my PhD from the CINVESTAV-IPN in Mexico City in Biotechnology. My doctoral research covered the role of Glomus mosseae BEG25 (a mycorrhizal fungi) and Pseudomonas fluorescens 2-4 in cadmium accumulation by Echinochloa polystachya (aleman grass).

My desire to continue working on phytoremediation of heavy metal contaminated ecosystems brought me to Dr. Maier’s group. I was initially supported by the Organization of American States and CONACyT-Mexico and then by the NIEHS-Superfund Basic Research Program. During my time at the U of A, my research has been focused on the phytostabilization of mine tailings from various areas in the USA - desert southwest. I have worked with tailings from different field sites in Arizona. Specifically, I screen soil bacteria and arbuscular mycorrhizal fungi (see picture below) for their plant growth promoting potential and evaluate their compatibility with native plants. I am really glad to be working on this applied and interdisciplinary research as well as enjoying the atmosphere of friendship and collaboration in Dr. Maier’s group and the SWES department.

A mesquite root colonized by an arbuscular mycorrhizal fungi
DEPARTMENT NEWS:

A new SWES website features news articles on a variety of environmental topics written by students from a spring course, Translating Environmental Science (SWES 415/515).

The 3-credit course teaches students how to turn science into stories by using reader-friendly words, quotes, and real-life examples. About a third of students were journalism majors interested in writing about environmental issues, while the rest were science majors interested in learning how to write for a general audience.

The students worked together in groups to help refine each other’s work. They wrapped up their efforts with one-on-one sessions with instructor Melanie Lenart, who joined the SWES faculty as an adjunct professor this spring.

The website, designed by SWES webmaster Karen Josephson, is expected to be active by mid-July. To read the stories, go to http://ag.arizona.edu/swes/environmental_writing/stories.html

Chris Rensing received a Joint faculty appointment in the Division of Community, Environment and Policy of the Mel and Enid Zuckerman College of Public Health on 1/11/2010.

From the SWES Business Office:

All UA employees, regardless of funding source, will participate in the FY 2010/2011 furlough program, with the exceptions that can be found on the HR website. Furlough hours will be prorated for employees who work less than 1.0 FTE.

Starting 1 July 2010 the F&A Rate for on campus research goes up to 51.5%.

Congratulations to:

Marian Ortiz, who received a UA NSF IGERT Fellowship in Genomics for 2010-2011. Marian is a Ph.D. student in R. Maier’s lab.

C. P. Gerba et al. who received the “Excellence in Environmental Engineering Award, 2010” from the American Academy of Environmental Engineering for the project “Microbial Risk Assessment for the Chicago Waterways System”.

Sharon Megdal who has been selected to receive the University Distinguished Faculty Outreach award for her outstanding contributions to outreach. This is a significant accomplishment as this award is considered the highest University honor in an area so central to the University of Arizona’s land-grant mission.

SWES REPORT CARD:

GRANTS:

M. McEvoy (P.I.) and C. Rensing (Co-P.I.) ARRA Supplement to: The Role of Protein Interactions in Microbial Copper/Silver Resistance. $76,316, 5/1/10 to 4/30/11.


PUBLICATIONS:


Megdal, S. Water Policy Innovations and Challenges in Arizona, Rural Connections – Water in the Western U.S. Is there enough to meet the region’s needs?, Western Rural Development Center, Utah State University, May 2010.


PRESENTATIONS:

Oral Presentations at the Triennial Conference Aquaculture 2010 in San Diego CA:

**Martinez-Garcia R., K. Fitzsimmons et al.** Effects of Salinity on Growth and Survival of Gift Tilapia Oreochromis niloticus and Red Hybrid Tilapia Oreochromis niloticus x Oreochromis mossambicus.


---


**Gerba, C. P.** Teaching hygiene. ASM Conference on Undergraduate Educators. San Diego, CA, May 23.


**Megdal, S.** Challenges to Sustainability Water Management and the Central Arizona Project. Workshop on Energy, Water and Global Climate Change as a Regional Agenda of the Americas, Pan American Advanced Studies Institute, San Diego State University, San Diego, CA, May 24.

**Megdal, S.** The Central Arizona Project (CAP) and Planning for Times of Shortage, 4th Binational Water and Climate Workshop, Urban Water Management, Climate Change and Adaptive Strategies for the Arizona-Sonora Region, Hermosillo, Sonora, Mexico, May 7.

**Megdal, S.** Keynote Address: Expanding Your Horizons Women in Science and Engineering Program (WISE), University of Arizona, Tucson, AZ, March 6.


**Pepper, I.L.** Keynote Address: Soil and Biosolids as a Public Health Threat or Savior. Australian Water Association Biosolids Specialty Conference V. Sydney, Australia, June 24.


**Silvertooth, J.C.** Improving Crop Nutrient Management Efficiency. Southwest Ag Summit. Yuma, AZ, March 11.

**Silvertooth, J.C.** Densidad De Plantas, Fertilización N-P-K, El Cuando Aplican el 1ro y 2do Riegos. Sistema Producto Algodón. Mexicali, Mexico, May 12.
**PLANE TALK**

Ian Pepper, Director

The first 2010 bi-annual meeting of the NSF Water and Environmental Technology (WET) Center will be held in Philadelphia June 22-23 at Temple University. The focus of many of the Temple University members is endocrine disruptors. Below is an outline of the agenda for the meeting:

**Tuesday– June 22, 2010**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45-9:00 AM</td>
<td>Opening Remarks and Introduction of Participants</td>
</tr>
<tr>
<td></td>
<td>Rominder Suri, Director WET Center</td>
</tr>
<tr>
<td>9:00-9:15 AM</td>
<td>State-of-the-Center Report – Temple University</td>
</tr>
<tr>
<td></td>
<td>Rominder Suri</td>
</tr>
<tr>
<td>9:15– 9:30AM</td>
<td>State-of-the-Center – The University of Arizona</td>
</tr>
<tr>
<td></td>
<td>Ian Pepper, Director UA Site</td>
</tr>
<tr>
<td>9:30– 9:45AM</td>
<td>State-of-the-Center – Arizona State University</td>
</tr>
<tr>
<td></td>
<td>Morteza Abbaszadegan, Director ASU Site</td>
</tr>
<tr>
<td>9:45 – 10:30AM</td>
<td>Research Progress Summaries, University of Arizona Center Site</td>
</tr>
<tr>
<td></td>
<td>Ian Pepper, Director UA Site</td>
</tr>
<tr>
<td>10:45 – 11:30AM</td>
<td>Research Progress Summaries, Arizona State University Center Site</td>
</tr>
<tr>
<td></td>
<td>Morteza Abbaszadegan, Director ASU Site</td>
</tr>
<tr>
<td>11:30 – 11:45AM</td>
<td>WET Center NSF Evaluator Report</td>
</tr>
<tr>
<td></td>
<td>David Tansik</td>
</tr>
</tbody>
</table>

**Project Presentations**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00-1:15 PM</td>
<td>Project Report 1: Evaluation of EPA Analytical Method and Development of Analytical Methods for Emerging Chemicals of Interest</td>
</tr>
<tr>
<td></td>
<td>Weiyue Qu, TU</td>
</tr>
<tr>
<td>1:15-1:30 PM</td>
<td>Project Report 2: Development of novel, selective nanomaterials for the removal of ECs from water</td>
</tr>
<tr>
<td></td>
<td>Bikash Bhattarai, TU</td>
</tr>
<tr>
<td>2:50 – 3:10 PM</td>
<td>Proposed Research Project 1: Risk Assessment for Emerging Contaminants via Life Cycle Assessment (LCA) and Toxicology Data</td>
</tr>
<tr>
<td></td>
<td>Sandip Shah, TU</td>
</tr>
<tr>
<td>3:10 – 3:30 PM</td>
<td>Proposed Research Project 2: Development of Predictive methodologies using quantum chemistry calculations (QCC), quantitative structure-activity and structure-property relationships (QSAR/QSPR) to model EC degradation</td>
</tr>
<tr>
<td></td>
<td>Ekaterina Rokhina, TU</td>
</tr>
<tr>
<td>3:30 – 4:30 PM</td>
<td>Industry Workshop about Future Research Needs (Technology Road Map) Guided discussion and feedback on additional research needs</td>
</tr>
<tr>
<td></td>
<td>Paul Yaroschak, DoD</td>
</tr>
<tr>
<td>4:30 – 4:45 PM</td>
<td>Discussion of the organization of the next morning session</td>
</tr>
</tbody>
</table>

**SWES End-of-Year Celebration**

Another successful celebration at Zachary’s Pizza – 6 May 2010. Thank you for the pizza!!