Department of Environmental and Occupational Health Sciences
ENVIRONMENTAL HEALTH News
School of Public Health and Community Medicine ■ University of Washington ■ Spring–Summer 2008

STUDENTS AND THE SCIENCE OF EXPOSURE

Our department has five graduate programs in the occupational and environmental health sciences. This issue of Environmental Health News focuses on two Exposure Sciences students who apply their scientific knowledge to solving workplace safety and health problems. The remainder of this issue summarizes the highlights of our 2007–2008 school year, including degrees, awards, and presentations at spring conferences.

INSIDE

NOISE EXPOSURE

Noise induced hearing loss is a classic public health problem—the disease is irreversible and progressive, but 100% preventable. Graduate student Rick Neitzel has a passion for the topic.

He first came to the University of Washington in 1996, after finishing a bachelor's degree in Safety from the University of Southern California. His master's thesis at UW was on occupational noise exposures in four construction trades. Since then, he has been a research scientist with Professor Noah Seixas, investigating a variety of occupational health and safety issues, including causes of hearing loss among construction workers.

His love of applied academic research led him into the PhD program in Environmental and Occupational Hygiene. He expects to complete his doctorate next June. His dissertation finds him in the field, trying to improve methods for assessing occupational exposures in dynamic industries such as construction, as well as evaluating the success of interventions designed to increase workers' awareness of occupational hazards.

Workers are sometimes reluctant to put on ear plugs or ear muffs, for fear that they won't be able to hear crucial warning sounds on a construction site. The problem would be straightforward if there were an easy way to know "now it's loud enough to put on my hearing protection." An effective prediction method also would help companies know which workers should be in a hearing conservation program.

Neitzel says his research has shown that construction workers have a reasonably good sense of how loud their surroundings are. (This isn't true of other types of occupational exposure, such as radiation or air pollution, which aren't

—continued on page 2

Photo: Rick Neitzel

—continued from page 1

readily detectable by humans.) His next step will be to try to use workers' perceived noise levels to develop more accurate and precise estimates of occupational noise exposure.

Neitzel is committed to preventing hearing loss. It is the most prevalent workplace hazard, and may cost billions of dollars annually in workers' compensation claims, he says. It also robs workers of many of life's enjoyments, and may put them at risk of accidents.

Neitzel is also interested in the effects of non-occupational noise. He once took a television reporter on a tour of Seattle's noisiest spots for a news feature titled, "What's that? Can't hear you, my iPod's too loud." He is also working with Columbia University to measure noise levels in New York City's subways, buses, and trains, and to estimate the risk of hearing loss to riders of these transit systems.

As a testament to his standing in the field, Neitzel has been selected as the chief editor of the new edition of *The Noise Manual*, the standard text on noise and hearing conservation, published by the American Industrial Hygiene Association. He plans to start his editorship when he finishes his dissertation. He is also president-elect of the National Hearing Conservation Association, and serves on the American Industrial Hygiene Association's noise committee.

He and Professor Seixas are eight years into a longitudinal cohort study—the type that can yield rare insights into behaviors and preventive measures. They started with a class of construction apprentices and have followed them into their careers. Every year they meet with the workers to measure hearing changes and find out what kind of work they have been doing.

Marc Beaudreau

A parallel project measured noise levels for various tasks in a dozen construction trades. This study led to an educational campaign to let workers and bosses know which tasks were the loudest. The brochures for both workers and supervisors are on the Occupational Noise and Hearing Conservation website that Neitzel helped design. The website also includes a hearing conservation training program that he, Professor Seixas, and other UW faculty developed and are currently evaluating.

MARINE CHEMISTRY

Last November one of our recent graduates, Amy Sly, made history when she became the first woman to be certified as a Marine Chemist by the National Fire Protection Association.

Sly came to our program with a bachelor's degree in Chemistry from Seattle University. She earned her master's degree in Industrial Hygiene and Safety in 2006, studying with Assistant Professor J. Scott Meschke. Her thesis focused on techniques for concentrating bioaerosols (airborne suspensions of particles derived from living organisms) for study in public health laboratories.

Her interest in marine chemistry took her into a tiny subspecialty of the already specialized world of industrial hygienists. There are fewer that 100 certified marine chemists in the country, and she holds the 706th license ever granted. The small cadre specializes in the health and safety of shipyard and maritime industry workers.

Sly has joined her father, Don Sly, in his business, Sound Testing, Inc., of West Seattle. She joined a team of three other marine chemists who delve into machinery spaces, fuel tanks, and other dangerous worksites to identify hazards that could spell disaster during ship repair processes. These hazards include harmful chemicals, acute physical dangers, and concentrated heat.

Sly says her work is both important and interesting because, traditionally, ship repair has ranked among the most dangerous manufacturing workplaces in American industry. In the industry, concentrated heat from welding and cutting torches; toxic solvents from painting, refrigeration, and cargoes; heavy loads; and high electrical charges all combine

Cover photo: Cement masons and laborers work on a concrete pour

Left: Rick Neitzel measures heavy equipment noise in the logging industry

Philip Dovinh

Amy Sly in front of a dry dock where Washington state ferries are repaired

to make a most challenging work atmosphere. This is the environment where marine chemists—as well as the repair crew—make their living.

Because repairs aboard marine vessels are by nature brief and intense, the workplace unsuitable, and the workforce transient, she says, safety professionals focus on training, communication among crafts and management, and diligence in their supervision and monitoring.

As a marine chemist, Sly says she makes many decisions affecting real-time worker safety in a complicated industrial environment.

FOR FURTHER READING

Amy Sly—first woman certified as NFPA marine chemist. Marine Field Service News, winter 2008 *http://www.nfpa.org/assets/files/PDF/2008WinterNewsletter.pdf*

Exposure Sciences website *http://depts.washington.edu/envhlth/acad_programs/es/*

Noise and hearing loss in construction website *http://staff.washington.edu/rneitzel*

Subway noise: Hard on nerves & hearing. WCBS TV, Oct. 11, 2006 *http://wcbstv.com/topstories/subway.mta.transit.2.238799.html*

UW Occupational Noise & Hearing Conservation website *http://depts.washington.edu/occnoise/*

What's that? Can't hear you, my iPod's too loud! KOMO TV news Feb. 8, 2006. *http://www.komonews.com/news/archive/4176786.html*

HISTORY OF WORKER SAFETY

Although occupational diseases had been known for centuries, the profession of industrial hygiene traces its roots to 1914, when what is now known as the Occupational Health Section of the American Public Health Association was formed.

This was followed, about 15 years later, by the profession's two most active organizations, the American Conference of Governmental Industrial Hygienists (ACGIH) and the American Industrial Hygiene Association (AIHA).

The AIHA defines industrial hygiene as the "science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the workplace, which may cause sickness, impaired health and well-being, or significant discomfort and inefficiency among workers or among the citizens of the community."

There has long been debate about the best name for the profession. "Industrial hygiene," "occupational health," and "environmental health" all have their adherents.

Last year, our department's Industrial Hygiene faculty reorganized the master's degree in Industrial Hygiene into one called the Master of Science in Occupational and Environmental Exposure Sciences. The new name better represents the current content and professional practice of this discipline, said program director Mike Yost.

Occupational hygiene remains one of four learning emphasis areas. The others are ergonomics and human factors, health and safety management, and exposure biomarkers.

FURTHER READING

Smyth HF Jr. The American Board of Industrial Hygiene. *American Journal of Public Health* 1966; 56(7):1120-1127.

STUDENT RESEARCH DAY, MAY 19, 2008

At our annual Student Research Day, one second-year master's student from each of our academic programs was selected to present an oral summary of his or her thesis or project research. The remainder of the graduating master's students and a few doctoral students presented posters of their work. Abstracts are online at http://depts.washington.edu/envhlth/research_days/srd_08.php. Faculty preceptors are listed in parentheses.

OPIATE USE BY INJURED WORKERS

Enass A Rahman, MPH, Occupational & Environmental Medicine (*Franklin*)

OxyContin, Darvon, and Vicodin are increasingly used for back injuries and other chronic nonmalignant pain. This liberalization of opioid prescribing raises concerns about potentially fatal side effects, as well as abuse and dependency. This study examines prescription data for workers with low back injuries in the Washington State Workers' Compensation System and explores whether long-term use of opiates decreases their pain level and improves their functional status. This information could help health-care providers improve their prescribing practices and treatment plans.

PBDEs IN CHINOOK SALMON

Eva Browne, MS, Toxicology (*Gallagher*)

Polybrominated diphenyl ethers (PBDEs) are chemical flame retardants that persist in the environment and bioaccumulate in wildlife and humans. Of particular concern is the Puget Sound Chinook salmon, whose PBDE levels are among the highest in salmonids. The chemical characteristics and concentrations of PBDEs in Chinook salmon suggest a metabolism process in the liver. However, Chinook do not appear to metabolize PBDEs the same way as carp or other fish. The Gallagher lab is continuing to look for the unique ways Chinook metabolize PBDEs.

WALKING AND HEALTH IN ELDERS

Erica Finsness, MPH, Environmental and Occupational Health (*Daniell*)

This study looks at neighborhoods, walking, and physical function in older adults. It combines data from two previous studies: the Walkable and Bikeable Communities (WBC) project from the UW Department of Urban Design and Planning, and the Adult Changes in Thought (ACT) study from Group Health Cooperative, which measured physical—as well as cognitive—function. Finsness looked for a statistical association between walkability and function for 740 people, average age 78. Her raw data failed to show a correlation, but she is continuing to examine other behavioral and community factors.

EXPOSURES IN A REFINERY

Loren Kaehn, MS, Occupational & Environmental Exposure Sciences (*Morgan*)

This project assessed occupational exposures to airborne chemical and noise hazards at a small petrochemical refinery. Kaehn compared worker exposures to relevant occupational exposure limits and stratified them by the urgency for implementation of workplace controls. Hydrogen sulfide, benzene, mercury vapor, and naphthalene exposures were found to be below relevant limits. Exposures to hexavalent chromium, sulfur dioxide, and noise necessitated follow-up. He recommended control methods such as ventilation modifications, equipment substitution, procedural changes, and personal protective equipment.

PATHOGENS IN DRINKING WATER

Jennifer Parker, MS, Environmental Health (*Meschke*)

Drinking water is not routinely monitored for pathogens because they are difficult to detect. However, new molecular methods, such as whole genome amplification (WGA), seem promising. This study applied WGA to mock drinking water samples containing DNA from mixed microbial communities spiked with small quantities of the human pathogens Adenovirus type 41, Echovirus type 13, *Mycobacterium avium,* and *Aeromonas hydrophila*. This study showed the feasibility of detecting very small quantities of nucleic acids from small numbers of pathogenic organisms.

Enass A Rahman

Eva Browne

Erica Finsness

Loren Kaehn

Jennifer Parker

STUDENT POSTER SESSION

Environmental Health, MS

Lesley Leggett (*Shin*) Inactivation of human adenovirus serotype 2 by sequential disinfection with UV irradiation and free chlorine

Kelly Stumbaugh (*Kissel*) Estimation of skin permeability coefficients for aqueous chloroform from human *in vivo* trials and assessment of the relative contribution of dermal exposure

Melissa Winters (*Fenske*) The Washington aerial spray drift: A comparison of children's inhalation exposures to methamidophos estimated using diary and personalized global position system data

Industrial Hygiene, MS

Oleg Antonchuk (*Seixas*) Evaluation of local exhaust ventilation for welding

Travis Cook (*Simpson*) Identification of chlorpyrifos adducts in rat blood plasma by mass spectrometry based proteomics

Seong Hyun Hwang (*Johnson*) Race, gender and finger anthropometry: Implications for computer input device design

Jannette Kibogy (*Fenske*) Assessment of chlorpyrifos exposure in agricultural workers during airblast applications

Danielle Parette (*Morgan*) Particle size distribution and bioavailability of hexavalent chromium among welders and spray painters

Benjamin Wischmeier (*Yost*) Evaluation of the efficacy of the BioSampler aerosol collection device for collection and retention of various particle sizes

Occupational & Environmental Exposure Sciences, MS

Ryan Blood (*Johnson*) Whole body vibration exposure among transit workers in King County, Washington

Toxicology, MS

Cassandra Fok (*Eaton*) The role of glutathione in microglial-induced oxidative stress

Environmental and Occupational Health, MPH

Devasmita Chakraverty (*Woods*) Preparation of integrated risk information systems (IRIS) reports and quantification of reference doses and concentrations for tungsten and cadmium exposures

Sarah Lowry (*Seixas*) Possibilities and challenges in injury surveillance in Seattle-area day laborers

Kenneth Scott (*Silverstein*) Preparing for an aging workforce: A formative evaluation of an action plan development workshop

David Shoaf (*Keifer*) Usability: An important consideration for public health education on the web

Occupational and Environmental Medicine, MPH

Bradley Gardiner (*Firestone*) Survival analysis of new military recruits requiring waivers for scoliosis

Aaron Jacob (*Keifer)* Survival analysis of new military recruits requiring medical waivers for *pes planus*

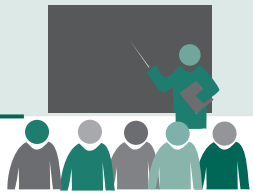
Christine Lang (*Daniell*) Weight at enlistment predicts enrollment in the Army weight control program 15 months later

Rachel Roisman (*Vedal*) Respiratory health effects among children in a pulp mill community

Toxicology, PhD

Erin Peck (*Eaton*) Activation of aristolochic acid to mutagenic metabolites by human CYP1A1, 1A2, and 3A4

Isaac Mohar (*Kavanagh*) Acetaminophen-protein adducts are not sufficient for hepatocellular necrosis in mice: Modulation of toxicity by gender and GCLM



CONFERENCE PRESENTATIONS

Departmental presenters and alumni in bold green type

American Thoracic Society
May 16–21, Toronto

Bai N, Kido T, **Corey LM,** Laher I, **Rosenfeld ME,** van Eeden SF. Effect of chronic diesel exhaust particle inhalation on nitric oxide production in mouse aorta

Carlsten C. A breath of not-so-fresh air: What the clinician should know about air pollution and cardiopulmonary disease

Carlsten C, Christiani DC. Genetics and occupational/environmental lung disease: Informing dose-response relationships, risk modification, and associated regulatory approaches

Kido T, Bai N, Tamagawa E, Suzuki H, Elliott M, Meredith A, **Rosenfeld ME,** Eeden SF. Diesel exhaust particles inhalation induces heat shock protein expression in the lung: Relationship to vascular dysfunction

Rabinovitch N, Strand M, Dutton S, Hannigan M, Miller S, Gelfand EW, **Vedal S.** Is $PM_{2.5}$ chemical composition or total $PM_{2.5}$ mass more associated with Albuterol usage in schoolchildren with asthma?

Rosenfeld M. Childhood bronchiectasis: Views from around the world

Vedal S, Kim SY, **Sheppard L,** Dutton SJ, Hannigan MP, Miller SL. Vehicle emissions and daily hospitalizations in the Denver Aerosol Sources and Health (DASH) Study

American Industrial Hygiene Conference & Expo
May 31–June 5, Minneapolis

Beaudet N. A framework for evaluation of pediatric environmental exposures

Camp J. Pursuing excellence: Critical points in industrial hygiene OEHS consulting management

Croteau G. Controlling noise exposure levels at a seafood processing facility

Monteith L. Humidity effects on sampling rates of passive diffusive samplers

Seixas NS. Noise exposure in construction: Lessons for assessment methods

*Professor **Michael Morgan** received this year's Meritorious Achievement Award from the American Conference of Governmental Industrial Hygienists (see page 11).*

American Society for Microbiology
June 1–5, Boston

Leggett LA, Lee J-K, **Shin G-A.** Inactivation of human adenovirus serotype 2 by sequential disinfection with UV irradiation and free chlorine

Parker JK, Chang TY, Cangelosi GA, **Meschke JS.** Whole genome amplification as a pre-PCR step to improve detection of pathogens in drinking water

Soge OO, Ivanova IC, Giardino M, Pearson AL, **Meschke JS, Roberts MC.** Low rates of antibiotic resistance gene carriage in environmental bacteria isolated from remote southwestern Ugandan water sources

National Environmental Health Association
June 25–28, Tucson

Sanchez YA. Research needs for community-based risk assessment: Findings from a multi-disciplinary workshop

Stumbaugh KL, Shirai JH, Kissel JC. Estimation of skin permeability coefficients for aqueous chloroform from the Gordon et al. *in vivo* human trials: Impact on estimated relative contribution of dermal exposure

***Kelly Stumbaugh, Lesley Leggett,** and **Ben Wischmeier** won student travel awards from AEHAP.*

HEALTH & SAFETY IN AGRICULTURE CONFERENCE

Health and Safety in Western Agriculture—New Paths
November 11–13, 2008, Cle Elum, Washington
http://depts.washington.edu/pnash/2008conference/

This conference will address new worker populations, research avenues, and innovative approaches for the prevention of disease and injury in agriculture.

CONTINUING EDUCATION & EVENTS

To confirm this schedule or find more information about these courses, call 206-543-1069 or visit the Continuing Education website at http://depts.washington.edu/ehce. Courses are in Seattle unless noted.

PACIFIC NORTHWEST OSHA EDUCATION CENTER

Not for OSHA rules only! All classes offer training that meets Washington DOSH, OR-OSHA, and Alaska state standards, as appropriate.

Aug 4–7	OHSA 500: Trainer Course for Construction Industry (*full*)
Aug 4–7	OSHA 501: Trainer Course in Standards for General Industry (*Portland*)
Aug 5–7	OSHA 2264: Permit-Required Confined Space Entry (*Portland*)
Aug 11–13	OSHA 3095: Electrical Standards
Aug 11–14	OSHA 6000: Collateral Duty Course for Other Federal Agencies (*Portland*)
Aug 12–14	OSHA 3110: Fall Arrest Systems (*Portland*)
Aug 18–20	OSHA 2250: Principles of Ergonomics
Aug 25–27	Supervisory Safety & Health Duties
Sep 2–5	OSHA 511: General Industry Standards
Sep 8–10	OSHA 2250: Principles of Ergonomics (*Anchorage*)
Sep 8–11	OSHA 510: OSHA Standards for the Construction Industry (*Portland*)
Sep 8–11	OSHA 521: OSHA Guide to Industrial Hygiene (*Portland*)
Sep 15–17	OSHA 3010: Excavation, Trenching, & Soil Mechanics (*Boise*)
Sep 15–18	OSHA 501: Trainer Course in Standards for General Industry
Sep 15–18	OSHA 6000: Collateral Duty Course for Other Federal Agencies (*Portland*)
Sep 16–18	OSHA 2225: Respiratory Protection (*Portland*)
Sep 22–24	OSHA 502: Update for Construction Industry Trainer
Sep 24–26	OSHA 503: Update for General Industry Trainer
Sep 29–Oct 2	OSHA 510: OSHA Standards for the Construction Industry
Sep 29–Oct 2	OSHA 5600: Disaster Site Worker Train-the-Trainer
Oct 6–9	OSHA 510: OSHA Standards for the Construction Industry (*Portland*)
Oct 6–9	OSHA 2015: Hazardous Materials (*Portland*)
Oct 6–9	OSHA 6000: Collateral Duty Course for Other Federal Agencies
Nov 5–8	OSHA 510 OSHA Standards for the Construction Industry (*Richland*)
Nov 6–8	OSHA 3095 Electrical Standards (*Portland*)
Nov 7–9	OSHA 501 Trainer Course for General Industry (*Anchorage*)
Nov 13–16	OSHA 511 Standards for the General Industry
Dec 3–5	OSHA 502 Update for Construction Industry Trainer (*Portland*)
Dec 4–6	OSHA 3110 Fall Arrest Systems
Dec 5–7	OSHA 503 Update for General Industry Trainer (*Portland*)

NORTHWEST CENTER FOR OCCUPATIONAL HEALTH & SAFETY

Oct 2	Puget Sound Occupational & Environmental Medicine Grand Rounds
Oct 15	Emerging Technologies in Occupational and Environmental Health (*SeaTac*)
Nov 5–7	CHMM National Overview Course
Nov 6	Puget Sound Occupational & Environmental Medicine Grand Rounds
Nov 11–13	Health and Safety in Western Agriculture (*Cle Elum*)

COMMENCEMENT

GRADUATE & UNDERGRADUATE DEGREES AUTUMN 2007-SUMMER 2008

Enass Awad A Rahman, MPH
Abebe G. Aberra, BS
Oleg Antonchuk, MS
Breyan P. Blackett, BS
Ryan Blood, MS
Eva Pauline Browne, MS
Stephanie Carter, PhD
Devasmita Chakraverty, MPH
Travis Cook, MS
Lisa Corey, PhD
Robert Crampton, PhD
Christopher Magnata Diangco, BS
Katie M. Fellows, BS
Erica Frost Finsness, MPH
Conor Vickers Foley, BS
Bradley Gardiner, MPH
Anisa Ghadrshenas, BS
Janessa M. Stream Graves, MPH
Minh Huynh, BS
Seong Hyun Hwang, MS
Aaron Jacob, MPH
Loren Kaehn, MS
Gurman Kaur, BS
Jannette Kibogy, MS
Nassir Kowdan, BS
Christine Lang, MPH
Anh-Thu Le, BS
Lesley A. Leggett, MS
Harry Luu, BS
Nadia Hope Moore, PhD
Kazuhiro Okumura, BS
Daniel Ormeni, BS
John Paolo Lugod Palacio, BS
Jennifer Parker, MS
Robert Lawrence Reed, BS
Joshua Frederick Robinson, PhD
Rachel Eleah Roisman, MPH
Kenneth Anderson Scott, MPH
Amelia Shaw, BS
David Shoaf, MPH
Misti Deana Rashelle Smith, BS
Christine Snelson, BS
Tiffany Jane Spencer, BS
Kelly Lee Stumbaugh, MS
Renee H. Sutton, BS
Retta Taffesse, BS
Nhu-Minh Nguyen Truong, BS
Ming-Yi Tsai, PhD
Daniel J. Tseng, BS
Christopher Tung, BS
Megan Claire Turner, BS
Nichole Waiss, BS
Melissa Winters, MS
Benjamin R. Wischmeier, MS
Christina Marie Wong, BS
Stephanie Marie Wong, BS
Wilson Wai-Shing Yu, BS

Below:
UW Commencement 2008 (l to r): Devasmita Chakraverty, Seong Hyun Hwang, Benjamin Wischmeier, Jannette Kibogy, Danielle Parette (graduating later this year), Nadia Moore, Lisa Corey, Christine Snelson, Megan Turner, Misti Smith, Robert Reed, Nichole Waiss, and Christina Wong.

Photos, pages 8-9: Kathy Hall

GRADUATE RECOGNITION CEREMONY, JUNE 11, 2008

The department's 2008 graduation ceremony finally outgrew the Henry Art Gallery auditorium. Our 28 undergraduates and 33 graduate students were honored at the University of Washington's HUB auditorium for the first time.

Keynote speaker Don Villarejo, the retired founder of the California Institute of Rural Studies, recounted the differences that environmental and occupational health have made over a half-century. Workplace illnesses and fatalities have decreased, he said, because of technological improvements and social change, yet there is still work to be done.

The field still experiences a tension between theory and practice, and Villarejo encouraged the graduates not to lose sight of the people who suffer in silence in hazardous workplace and community conditions.

Undergraduate program speaker Megan Claire Turner wished her fellow graduates well as they move on to "prestigious acronymed institutions such as CDC, EPA, and B-O-E-I-N-G."

Graduate program speaker Isaac Mohar gave a thought-provoking speech about the marginalized, oppressed, and diseased populations of the world, and reminded his fellow graduates of the importance of their field.

Graduates were introduced one-by-one with introductions they wrote themselves.

At least 14 graduate students and seven undergraduates said jobs or further training would keep them in the state.

A number of awards were announced, as listed on page 10. The ceremony concluded with a reception at the University of Washington Club.

Above: Valerie Pettebone, an undergraduate researcher in Professor Evan Gallagher's lab, with Isaac Mohar at UW Commencement. He will receive his PhD later this year.

Pat McGiffert

At the 2008 SPHCM graduation ceremony (l to r): Jannette Kibogy, Dave Kalman, Misti Smith, Daniel Tseng, Janessa Graves

Janessa Graves, an MPH student in Environmental and Occupational Health, won the School of Public Health and Community Medicine's Gilbert S. Omenn award as the School's outstanding master's student. **Misti Deanna Rashelle Smith** was named the department's outstanding undergraduate student and **Diana Ceballos** the outstanding graduate student.

Professor **Elaine Faustman** won the School's outstanding teacher award. **Sung Woo Hong,** a research scientist in her laboratory, won the department's outstanding staff award and the School's Kenneth J. Anderson award.

In addition to Hong, the nominees for our department's outstanding staff award were **Catherine Alexander, Diane Botta, Russell Dills, Sarah Fischer, Lynn Fritzen, Monica Leibrant, Rory Murphy, Rick Neitzel, Venetia Runnion, Robin Russell, Jeff Shirai, Bert Stover, Jennifer Zadikow,** and two work groups, Sally Liu's Diesel Bus Team (**Margaret Coburn, Erin Corwine, Tom Malamakal, Nichole Real, Melissa Symon, Chris Warner**), and the Environmental Health Lab (**Jacqui Ahmad, Russell Dills, Maureen Cornell Endres, Jianbo Yu**).

Undergraduate student **Kazuhiro Okumura** was our 2008 Jack Hatlen scholarship winner.

Elaine Faustman

Sung Woo Hong

Diana Ceballos

J. Scott Meschke

Assistant Professor **J. Scott Meschke** was named the outstanding faculty mentor of the year by the department's graduate students. Other nominees were **Janice Camp, Bill Daniell, Jordan Firestone, Terry Kavanagh, John Kissell, Noah Seixas,** and **Chris Simpson.**

Loren Kaehn, a master's student in the Exposure Sciences program, received a Veterans of Safety scholarship in December and became a Certified Safety Professional in February. In June, he became the department's first MS student to complete a portfolio instead of a thesis under a new degree option.

Undergraduate student **Stephanie Wong** won a Mary Gates Scholarship in March, based on her internship work on exhaled nitric oxide with Sally Liu's Diesel Bus Study team. She will continue her studies in our MS program.

Doctoral student **Clarita Lefthand** was awarded a three-year Science to Achieve Results (STAR) fellowship from the Environmental Protection Agency, which supports some of the nation's most promising master's and doctoral candidates. She studies with microbiologist J. Scott Meschke.

One of Meschke's incoming master's students, **Kelly Jones,** has earned a Dr. Nancy Foster Scholarship from the National Oceanic and Atmospheric Administration.

Affiliate Professor **Steve Gilbert** continues to develop Toxipedia, *http://www.toxipedia.org,* a free toxicology encyclopedia and resource center, and is actively recruiting authors. Gilbert has also created Healthy World Theater, *http://www.HealthyWorld Theater.org,* to couple art and science and forge a more healthy and peaceful world, and is seeking contributions of poems, songs, plays, and other artistic material.

LIFETIME ACHIEVEMENT AWARD

Professor **Michael Morgan** is this year's recipient of the Meritorious Achievement Award from the American Conference of Governmental Industrial Hygienists (ACGIH). The award, presented at this year's American Industrial Hygiene Conference and Expo (see page 6), recognizes Morgan's outstanding, long-term contributions to the field of occupational health and industrial hygiene.

Morgan earned his doctoral degree in chemical engineering from the Massachusetts Institute of Technology (MIT) and completed post-doctoral training in respiratory physiology at Harvard University's School of Public Health.

He joined our faculty in 1974. His research topics focus on human responses to the inhalation of air contaminants, including combustion products (sulfur dioxide and sulfate particles), ozone, and volatile solvents.

His research program in pharmacokinetics and biological monitoring of organic solvents is funded by the National Institute of Environmental Health Sciences.

Morgan has won several teaching awards and has supervised the graduate research projects of 65 students in industrial hygiene and toxicology.

He is editor-in-chief of the *Journal of Occupational and Environmental Hygiene* and author of more than 65 peer-reviewed publications.

Michael Morgan

Gavin Sisk

2005-07 BIENNIAL REPORT

"Research to practice" (or "r2p," as some abbreviate it) is the theme of our department's 2005–2007 biennial report. We describe research that addresses a global health dilemma, helps clean up environmental health problems, and supports changes in computer technology. We also profile six of our alumni, whose careers range from roles in local nonprofits to global corporations. The cover showcases the winner of our first faculty-staff-student art competition.

You can order a free copy by calling 206-543-6991 or sending an e-mail to *ehadmin@u.washington.edu*.

The report is also available online in HTML and PDF formats at *http://depts.washington.edu/envhlth*.

THE FINE PRINT

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