

ENVIRONMENTAL SCIENCE AND MANAGEMENT NEWSLETTER

Environmental Science and Management Program
Portland State University

Volume 1, Issue 3. Summer 2010
www.pdx.edu/esm

Congratulations 2010 ESM Graduates!

Bachelor's Degree

Nick David (EVSC)
Ryan Thiele (EVSC)
Jenna Lane (EVSC)
Kendall Anne Sun (EVSC)
Jennifer Wetzold (EVST)
Lindsay Marie Mayer (EVSC)
Emily Swanson (EVSC)
Alexander Pangrac (EVST)
Mikaela Jones (EVST)
Andrew Ennis (EVST)
Alana Kambury (EVST)
Megan Davis (EVST)
Sarah Aspholm (EVSC)
Paul Dunnette (EVSC)
Alexis Thompson (EVSC)
Melissa Vanderwerf (EVST)
Jake Fetzer (EVSC)
Chris Conrad (EVST)

Master of Environmental Management

Donna Rupp
Danny Warren
Brian Fletcher
Rachel Kutschera
Kinsey Keller
David Kennedy

**PSU Weekend ESM Alumni
Event – SAVE THE DATE!**

October 22-24

Master of Science:

Lynda Moore
Lizzie Hess
Kelly Warren
Whitney Temple
Kala Gonsler

PhD:

Nadia Gillette (Pan)Sybil Kelley (Becker)

Student Awards 2010

Undergraduate Student Awards

Hanna Davis – ESM Environmental Sustainability Award
Andy Eiden – Paul Croy Environmental Scholarship
Aimee Drake – Barry Commoner Scholarship
Alex Desrochers – Department Service Award

Graduate Student Awards

Patrick Edwards – Dunnette Award
Tim Davidson – Science and Research
Tara Chestnut – Student Teaching
Ted Hart – Student Teaching
Tanner Scrivens – Department Service Award

ESM Summer Research 2010

Students and staff in **Mark Sytsma's** lab will be conducting lake and invasive species work this summer. Post-doctoral associate Ian Davidson will be characterizing the type and extent of hull fouling on various types of ships in California and Alaska. Masters student Melinda Lamb, MEM student, will conduct research in Alaska and in our greenhouse on campus on the influence of light and nutrients on growth of reed canary grass. PhD student Tara Chestnut will be a Gk-12 Fellow this summer in addition to conducting research on *Batrachochytrium dendrobatidis* infection of amphibians. Brian Adair, PhD student, will be at Lake Mead examining the dietary and calcium requirements of quagga mussels. Trevor Sheffels, PhD student, will conduct research on the biology and behavior of nutria in urban areas around Portland. Kelly Warren, MEM student, will be in Alaska counting goose nests and eggs as part of his work examining the effect of climate change on migratory behavior. Other research projects include studies of Diamond, Waldo, and Spirit lakes; surveys for aquatic weeds and other invasive species

Jeff Gerwing will be engaging diverse stakeholder groups in the collection of data on the effectiveness of road closure devices on the Mt Hood National Forest as part of a National Forest Foundation grant to the Clackamas Stewardship Partners. He will also be initiating a study of the effectiveness of overstory thinning treatments on Huckleberry growth and productivity.

A new Research Associate will be joining the **Scheller** Lab in August. Dr. Louise Loudermilk will be leading management of a recently funded grant to examine the consequences of climate change on wildfire and carbon dynamics in the Lake Tahoe Basin. Dr. Scheller will also be conducting parallel research on climate change, fire, and insect defoliation in southern New Jersey.

Elise Granek and her lab group will again be working on several different projects. Here in Oregon Zoe Rodriguez del Rey will be completing her analyses on caffeine contamination at intertidal sites along the Oregon Coast. Granek will again be mentoring high school science teacher Brian Fain, a Murdock Partners in Science Fellow. Brian will be examining whether and where PBDEs (flame retardants) and PCBs are being uptaken by mussels collected from five sites along the Oregon Coast. Heather Hayden will conduct her final field sampling of mangrove seedlings at Turneffe Atoll, Belize to examine differences in growth rates between seedlings in cleared and intact areas and to identify factors limiting seedling growth in clearings. Sarah Freed will continue with her dissertation research examining coral reef resource use and the resultant reef health status at 25 sites in the Comoros Islands. This year two research assistants will accompany her to assist with studies ranging from coral recruitment and growth and reef sedimentation to community surveys of reef resource use and management. Finally, Choo Chee Kuang will be conducting his field research in the Pulai River Estuary in Malaysia, examining effects of dredging on seagrass beds, surveys of fishing communities, and development of an ecosystem-based management plan for the Special Conservation Area in the Pulai River Estuary. Chris Mongeon will join the lab group this summer as an MEM student working with the NGO Pretoma in Costa Rica to assess fisheries impacts and core fishing areas for development of a proposed marine protected area.

Bill Fish will continue to work with Kiara Smith in her doctoral research examining the causes and effects of the methanogenic degradation of naphthalene and organic-coated containment clays at the McCormick & Baxter Superfund Site in Portland Harbor. Another summer project involves a study of the characteristics of waste water from a lawn-maintenance equipment washing area that is diverted into a treatment wetland. A third student project looks at the accumulation of toxic metals in soil and plant tissues in the runoff-control swales that have been installed curbside around the PSU campus.

John Rueter will start the summer with a trip to Peru to see his daughter in the Peace Corps and a side trip to the Galapagos. After that John and his students will continue to examine the ecology of southern Oregon lakes. Kit Rouhe will be beginning an investigation on the linkages between rivers, lakes and marshes by assessing how in-lake, fringe or flow-through marshes impact the algal assemblages of the lakes. Tanner Scrivens will be studying the vertical profile of temperature, oxygen and algal density in Upper Klamath and Agency Lakes as it relates to bloom formation and crashes. Both of these projects will help us understand the resiliency of these complex lake systems.

Three ESM alumni who completed their Ph.D. degrees during the past year have attained post-doctoral fellowships following graduation. **Fungai Mukome** (advised by Bill Fish) received a ____-year post-doctoral position at UC-Davis in California. Fungai will be working on ____ with _____. **Nadia Gillett** (advised by Yangdong Pan) received a 2-year post-doctoral position at the Annis Water Resources Institute, affiliated with Grand Valley State University in Michigan. Nadia will be working on harmful algal blooms in the Great Lakes with Dr. Alan Steinman. **Josh Caplan** (advised by Alan Yeakley) received a 3-year post-doctoral position at Rutgers University in New Jersey. Josh will be working on a USDA grant to compare rooting structure, nitrogen uptake, and competitiveness of invasive and native shrubs with Dr. Joan Ehrenfeld at Rutgers. Congratulations to all three!

Julie Smith's lab is focusing on improving native trout populations this summer. Graduate student Mary Ambler Ray begins a policy analysis for Trout Unlimited (TU) to determine the potential effects of implementing a State rule change that would eventually cease stocking of hatchery rainbow trout into the McKenzie River. TU is concerned that native wild rainbow trout population in the McKenzie River are negatively impacted by stocked rainbow trout. Keith Gareau has partnered with DEQ to determine the effectiveness of shade restoration projects on 303(d) listed streams in the Tillamook Bay Watershed. DEQ's goal is to reduce water temperatures as a means of enhancing healthy trout habitat.

Marion Dresner and graduate students Kelly Fischer, Hannah McDonald, and Kerissa Fuccillo will be helping establish and collect data in two new permanent research forest plots in Forest Park. They will be collecting tree and other vegetation data, soil nutrients, terrestrial invertebrate and mammal presence data, working with OSU and other PSU scientists and Portland-area high school teachers.

Recent Publications by ESM Faculty and Students

Ervin, D., L. Glenna, and R. Jussaume. 2010. "Are Biotechnology and Sustainable Agriculture Compatible?" *Renewable Agriculture and Food Systems*

Caplan, J.S. and J.A. Yeakley. 2010. Water relations advantages for invasive *Rubus armeniacus* over two native ruderal congeners. *Plant Ecology* (online 16 March 2010; 10.1007/s11258-010-9747-4).

Robert M Scheller, Brian R Sturtevant, Eric J Gustafson, Brendan C Ward, and David J Mladenoff. Increasing the reliability of ecological models using modern software engineering techniques. *Front Ecol Environ* 2010; 8(5):253-160, doi:10.1890/080141. (published online 20 Jul 2009).

Eric J. Gustafson, Anatoly Z. Shvidenko, Brian R. Sturtevant, and Robert M. Scheller. Predicting global change effects on forest biomass and composition in south-central Siberia. *Ecological Applications*, 20(3), 2010, pp. 700-715.

Catherine Ravenscroft, Robert M. Scheller, David J. Mladenoff, and Mark A. White. Forest restoration in a mixed-ownership landscape under climate change. *Ecological Applications*, 20(2), 2010, pp. 327-346.

Research Grants

Greg Ruiz and Mark Sytsma received a \$885,992 contract from the Department of Defense for development of a biosecurity plan for Micronesia. The project is collaboration between the Smithsonian Environmental Research Center (lead on the project), the Center for Lakes and Reservoirs at PSU, The University of Tasmania, and the National Institute of Water and Atmospheric Research in New Zealand. The project will develop policy and research recommendations on management of introduced freshwater plants and marine invertebrates and plants for implementation by the Federated States of Micronesia and the US government (Guam).

Alan Yeakley has received two new federal grants in the area of urban ecology. One project with the US Forest Service will investigate urban riparian ecosystems in Portland, focusing on native plants and salamander ecology; he will be working with graduate students Andrew Dietrich and Christa von Behren as well as four undergraduate interns on this two year project. Another urban ecology project is an ULTRA-Ex (Urban Long-term Research Area-Exploratory) grant from NSF; Alan, as lead PI, will be working with four other faculty at PSU including Marion Dresner from ESM, as well as faculty from Oregon State University and Washington State University, examining socio-ecological dynamics in Portland and Vancouver. Additionally, Alan's students are continuing their investigations into invasive plant ecology and management in Columbia River bottomlands (Tina Farelly, Sarah Shewell), stream restoration (Denisse Fisher de Leon) and alpine tree regeneration (Adelaide Johnson). Finally, as a member of the Independent Multidisciplinary Science Team (IMST) for the State of Oregon, Alan is collaborating on the completion of the IMST's Report on Urban and Rural-Residential Land-Use in Oregon, as well as other IMST review work of watershed and salmonid recovery plans by Oregon state agencies.

Linda George

