the
GRO Forum
Environmental Protection Agency Greater Research Opportunities Undergraduate Student Fellowships

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where are they now? Catching up with GRO Alumni

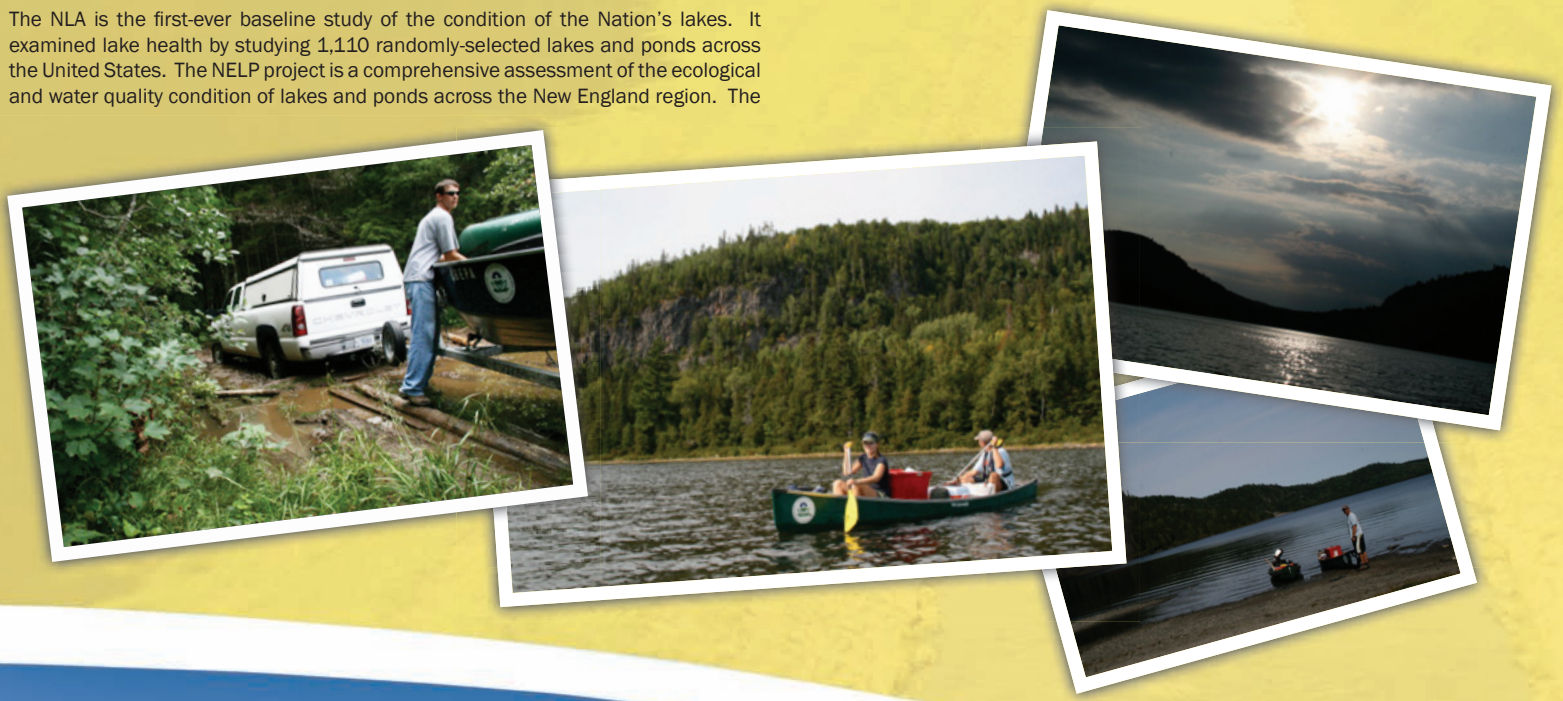
Eric Vanderboom

Eric Vanderboom remembers being interested in the environment from a young age. He recalls the fun of playing outdoors, but also "getting upset when I would find trash in the forest or bottles and cans in the creek or rivers." By high school, he says, "I knew I wanted to work in the environmental field, and more importantly, that I wanted to clean up areas that were contaminated." Through his undergraduate years, that interest remained strong, and now Eric is in training as an On-Scene Coordinator for EPA Region 1 in Boston, MA. His decision to apply for a job in Region 1 came out of his GRO summer internship.

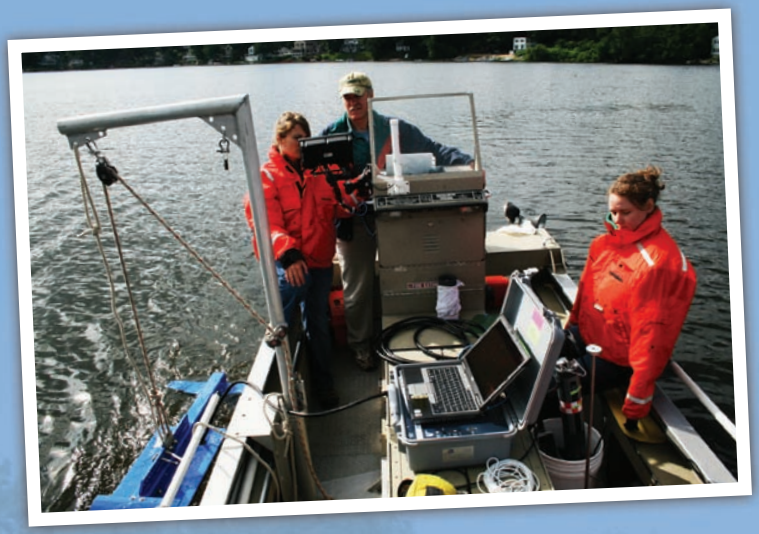
Eric's internship was at EPA's Region 1 lab in North Chelmsford, MA, about an hour northwest of Boston. For 12 weeks he worked on the National Lakes Assessment (NLA) program under the guidance of Hilary Snook and Katrina Kipp, in conjunction with Hilary's work on the New England Lakes and Ponds (NELP) project. Eric also got the opportunity to assist with some other projects done in the Region 1 lab, such as environmental sampling at a Superfund site, which allowed him to learn more about the scope of the lab's activities.

The NLA is the first-ever baseline study of the condition of the Nation's lakes. It examined lake health by studying 1,110 randomly-selected lakes and ponds across the United States. The NELP project is a comprehensive assessment of the ecological and water quality condition of lakes and ponds across the New England region. The two projects collaborated closely so that their data could be used interchangeably or combined for analysis. The opportunity to spend the summer conducting field sampling and habitat evaluations attracted Eric to this project. He had numerous responsibilities supporting the lake field work, including preparing equipment for the daily boat trips; starting up the GPS units used by the researchers to pinpoint pre-marked locations in the lakes; collecting samples for water chemistry, chlorophyll, microcystins (a type of toxin produced by bacteria), phytoplankton, and chloride from the deepest parts of the lakes; and taking sediment cores from lake and pond bottoms, sometimes from depths over 160 feet. Eric also assessed littoral and riparian habitats at ten pre-set locations around each body of water.

In addition to practical skills, such as water, sediment, and benthic sampling techniques, Eric learned about how the Lab supports Region 1 and what the researchers do there. He also got a better understanding of the relevance of EPA's environmental research. "I learned just how important it is to evaluate our natural resources and ecosystems from time to time to find out the status of their health and



Eric Vanderboom ... continued



see how they change," Eric said. "With studies like the NLA, done periodically, we can see how our bodies of water are doing, and also the ecosystems they support."

Sometimes getting to the sampling sites was an adventure, such as one late-summer overnight trip to Jackman, ME. By this point, the team had been sampling lakes for a couple of months, and the members had become skilled and efficient at their specific tasks. So sampling one particular pond shouldn't be a problem, right? Armed with GPS and detailed topographical maps, they set out one morning for a particular pond . . . and ended up on a real chase. As Eric put it, "We ended up spending the first day driving around looking for a pond that we couldn't find." At one point, they realized that they had ended up on a new logging road built a day or two before. As you'd expect, neither the GPS nor the maps could keep up with roads built that summer by the logging companies! The team also ventured down snowmobile tracks and twice found themselves right in the middle of a grassy field. Eventually, they resorted to the time-honored approach of stopping and asking for help. That didn't work either! They quickly learned that the pond's "official" name on the map might not be the same name that the local folks used. Did they ever find the pond? Yes. They finally learned that there was only one direction to get to the pond ... and they'd been coming in from the wrong side!

While his internship taught Eric a lot about interesting, find out who's doing it and go talk to them to learn more. Everybody I encountered at the lab was very helpful and knowledgeable and would take the time to explain things if I had questions."

Networking – making and maintaining good contacts – is another key benefit of the GRO summer internship program, and Eric's story is a great example of its importance. Following his internship, he stayed in contact with his Project Advisor, Hilary Snook. When Eric realized how much he'd like to work for EPA, he talked with Hilary about entry level positions in Region 1, which led to his application for, and hiring as, an On-Scene Coordinator.

EPA's On-Scene Coordinators (OSC) are responsible for monitoring or directing responses to oil spills and hazardous substance releases reported to the Federal government. As an OSC, Eric will coordinate Federal efforts with, support, and provide information to, local, state and regional response communities. OSCs' duties fall into the areas of assessment, monitoring, response assistance, and evaluation. He has a lot of excitement in his future! OSCs in Region 1 provide "boots-on-the-ground" response to a wide range of emergencies, including train derailments, tanker truck roll-overs, and abandoned containers. They also contribute to time-critical cleanups of industrial and commercial sites, ranging from factories and foundries to dry cleaners.

Summer 2010 GRO Internship Projects

Diana Adebambo
Lean manufacturing / green hospitality studies
Atlanta, GA

Jillian Allen
Ocean and coastal protection studies
Boston, MA

Jarymar Arar
Border 2012 studies
Dallas, TX

Jennifer Arceo
Validation of continuous liquid-liquid extractors
Golden, CO

Kelsey Boyd
Detection of watershed improvement: geo-spatial evaluation of existing implementation projects
Atlanta, GA

Angel Casanova
Quantification of Enterococci and identification of fecal pollution sources in beaches of the Eastern region of Puerto Rico
Athens, GA

Rhiana Cok
Microbiological treatment of drinking water for arsenic and ammonia removal
Cincinnati, OH

Austin Cook-Lindsay
Green chemistry
Washington, DC

Kereen Griffith
Habitat alteration mitigation for a New England lake
North Chelmsford, MA

Amanda Hayes
Lean manufacturing / green hospitality studie
Atlanta, GA

Sannon Klotsko
Satellite products applied to development of water quality standards
Gulf Breeze, FL

Khilia Logan
Detection of watershed improvement: geo-spatial evaluation of existing implementation projects
Atlanta, GA

John Maravich
Green building/ sustainability/performance tracking/green business/ environmental management systems
Denver, CO

Kate McPherson
Genetic adaptation of wild killifish populations to PCBs
Narragansett, RI

Elizabeth Medlock
Integrated toxicological approaches for assessing the ecological risks of pharmaceuticals in the environment
Duluth, MN

Nathan Nesbitt
Energy efficiency in the food processing industry
Boston, MA

Nikita Peperni
Helicopter monitoring program
Edison, NJ

Ellen Perkins
Responses of marine crustacean populations to human stressors in laboratory and field environments
Narragansett, RI

Jessica Pulliam
Technical support to Environmental Justice Showcase community pilot
Boston, MA

Alexander Ramsower
Ecological effects of herbicides
Corvallis, OR

Laura Senefeld
Cyanobacteria and stormwater monitoring in urban rivers
North Chelmsford, MA

Annette Sparks
Green building/sustainability/ performance tracking/green business/environmental management systems
Denver, CO

Casey Stephenson
Fish-habitat relationships in a Great Lakes coastal system
Duluth, MN

Matthew Tancos
Microbiological treatment of drinking water for arsenic and ammonia removal
Cincinnati, OH

Kristin Waller
Clean Air Markets Division studies
Washington, DC

Bernadette Wiggin
Sustainability and alternative energy as part of contaminated site restoration and beneficial reuse in the Pacific Northwest and Alaska
Seattle, WA

Eric is currently "shadowing" more senior OSCs to prepare him for going on response duty; when he's trained, he could be called to an emergency at any time. Even though he's new to the OSC position, Eric already likes the adventure and opportunity to work outdoors in the field, and sees other satisfying parts in his job's future. "One aspect of the OSC's job is removal actions, or 'quick cleanup,'" he explains. "Nothing makes you feel better than going out and cleaning up a site that is contaminated. The removal program has been a big success, and knowing that is real job satisfaction."

Eric earned a B.S. in geosciences (geology) in 2008 from the University of Tulsa (TU), Tulsa, OK. TU was founded in 1894; it is a private institution with a current enrollment of about 4,200 students. In terms of environmental research, TU has access to a key resource. TU students and faculty in chemistry, chemical engineering, geosciences and biological sciences can use the 37,000-acre Tallgrass Prairie Preserve as a living laboratory. The Preserve, managed by the Nature Conservancy, is an important refuge for American bison and preserves a prairie habitat that once covered much of the Midwest.

Eric's still considering the possibility of graduate school some day, to study for a Master's degree in geology, chemistry, or physics. He has a particular interest in arsenic in groundwater, a huge global-scale problem, especially in Bangladesh, where the level of arsenic in groundwater can be incredibly high. "I wrote two papers on this while at school and find the subject very interesting," Eric relates. "Being a geologist, subsurface activities are always intriguing. What's interesting about arsenic in the groundwater is that it is a naturally-occurring problem in most cases, not like a spill or release in which a company or individual is to blame."

Making the most of a GRO internship

Last year's GRO Fellows learned a lot during their internships not only the specifics kills and attitudes that will help them in future They also offered practical and wide-ranging ellows.

One Fellow summed things up very well: "To get the most from your internship, expect the most" both of yourself and the experience. Others reminded new interns, "Don't waste this unique opportunity!" and "The bottom line is: the success

situation by being prepared, positive,

vative concepts and try to implement th

background knowledge to the internship
t that makes an impact.
your project an original one.
ntribute to its design to make it "yours," a

Last year's Fellows also suggested taking the time to prepare and develop knowledge for your project.

- Build your background knowledge with supplemental research. Depending on your project, read standard operating procedures (SOPs),

  knowledgeable individuals at your university or in the workplace, and refer to books

  Work with your hosts to determine the most relevant

  Be knowledgeable about your project it will allow you to make helpful suggestions and

ects, and your own project – was another theme of their advice:

reat opportunity to meet more people in
fferent environmental issues.
are working on to get a full picture of

ilable to you, such as other labs and
oy.

- Offer suggestions and comments to show your hosts that you're interested in being a contributor to their efforts.
- Don't take the easy way and settle with only the tasks that you're assigned. Take the initiative – seek more to do and learn beyond what you're asked to do.

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Making the most of a GRO internship ... continued

The Fellows observed that communication was another key to a great experience.

- Meet as many people as possible.
- Foster relationships with people throughout your internship.
- Be open with your Mentor and Project Advisor. They want you to have the best possible experience. Share accomplishments and concerns with them to get their input and advice.
- Reach out to the CSS Project Manager with any questions or concerns.

Last year's Fellows also saw their internships as good opportunities to take some chances and experience new things.

- Step out of your comfort zone and try something new and challenging.
- Experience as much as possible by keeping an open mind to anything presented to you.
- Be flexible!

Having a great attitude and positive outlook contribute to great internship experiences.

- Show initiative by doing research and creative thinking on your own time, being a positive force in the workplace, and always maintaining useful communication.
- Be positive and outgoing! Your co-workers appreciate your fresh opinions and enthusiasm.
- Work hard, enjoy yourself, and meet new people!
- Show enthusiasm in everything you do, learn everything you can, and don't back away from challenges.
- If it's a busy day and your co-workers could use an extra pair of hands, don't hesitate to see if there's any way you can help.

And, of course, the Fellows remind new interns to enjoy themselves outside of work!

- Be sure to get out and experience the area, especially if it's new to you.
- Make new friends and try new things.
- Keep a camera handy. You never know what you'll see – you'll appreciate the memories in the future.